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**A STUDY TO DETERMINE AND PROVIDE RECOMMENDATIONS  
CONCERNING THE POSSIBLE STRATEGIC GAPS IN  
AMALAHLE MAINTENANCE SERVICES**

By

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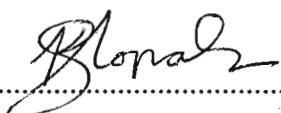
Sincerely

Mr. K.M Gopal

A handwritten signature in black ink, appearing to read 'Gopal', written below the printed name.

## DECLARATION

This research has not been previously accepted for any degree and is not being currently submitted in candidature for any degree.

Signed.....

Date..... 2006 - 01 - 29 ..... 116031

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## ABSTRACT

This study was concerned with determining and providing recommendations for the possible strategic gaps of Amalahle Maintenance Services. This company is a small to medium enterprise offering maintenances services within the Power Generation industry of Eskom. During the study, an in-depth literature review was done to analyse the 21<sup>st</sup> century strategy trends, the impact of these trends on small to medium enterprises such as AMS, the reasons for failures among small to medium enterprises, a comparison of strategy theories appropriate to AMS current situation and a review of maintenance and safety management techniques. This review was performed to determine the importance of strategic management for small to medium enterprises in the new economy. The review also determined the importance of strategic management in the new economy for the survival of companies large and small. A case study research strategy was chosen due to the unknown strategic gaps. The research was both qualitative and exploratory as the study concentrated on finding the possible strategic gaps. A literature review was also performed on the strategic management process in order to develop a framework to determine the current situation faced by the firm and to evaluate the current situation to determine the strategic gaps and also to provide recommendations. The strategic management process developed by Johnson and Scholes (1998) was adapted to determine and provide recommendations concerning the possible strategic gaps. The management process included three categories of strategic analysis, strategic choice and strategic implementation. These three categories were utilised to determine the current strategic analysis, that is, the external and internal environment of AMS, current business level and functional level strategic choices made by the firm, and the current strategic implementation, which included the firm's structure, controls, culture and leadership. The three categories of strategic analysis, strategic choice and strategic implementation were thereafter evaluated to determine the possible strategic gaps. The evaluation process was also broken up into the three strategic management processes. The strategic analysis included the STEEP, industry, competitor, stakeholder, functional capability and resource, and the SWOT analysis techniques. The SWOT analysis technique was also utilised to determine the current strategic options for AMS. The strategic choices made by the firm, together with the strategic options determined by the SWOT analyses were evaluated by the following techniques: SWOT interaction matrix, industry life cycle, positioning, value chain, grand strategy matrix and the grand strategy cluster to determine the possible strategic gaps and provide recommendations for strategic choices. The strategic implementation was evaluated by comparing the theories in Chapter Two to the current situation of the strategic implementation represented in Chapter Three. The evaluation of the strategic implementation determined the strategic gaps between the strategic choices and implementation. The final step included the recommendations for each of the evaluated strategic analysis, strategic choice and strategic implementation categories and their respective subcategories. Since the strategic gaps were unknown it was appropriate to utilise the entire management process as a strategic fault finding tool.

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## CHAPTER ONE: INTRODUCTION

### *1.1. Introduction*

The business environment in the 21<sup>st</sup> century is characterised by a rapid rate of technological development and globalisation, a move from an electronic to an information industry with reduced barriers to trade and the movements towards borderless competition (Stark and du Plessis, 2004; James, 1997). Stark and du Plessis (2004) view this as creating problems for businesses to sustain competitive advantages over long periods of time. Competition is moving to all sectors of the global industries as companies seek above average return on investments (Kotze, 2003; Hitt, Ireland and Hoskisson, 2003).

The new strategic paradigm in the 21<sup>st</sup> century which affects the strategy management process includes the following:

- *value*- customers are demanding higher value at lower costs, and companies are placing customers as the most important stakeholders;
- *innovation*- continuous improvement of products and services, business processes and organizational processes have become the greater value for creating the value required by the customer;
- *time and mobility*- the ability of organizations to make decisions quickly and effectively to also have swift responses to customer demands;
- *flexibility*- size and scale advantages are not important as being fast and innovative to switch competitive positions as the environment and competitive positions change;
- *knowledge and intellectual capital*- ideas and information are the driving forces behind the new economy and industries are becoming knowledge intensive and global (Kotze, 2003).

Sustainability has become a vital concept in the 21st century. It represents a quest for social equity, environmental conservation, and economic growth (Dylick and Hockerts, 2002; Kruger, 2003). Many of the large companies have started to downsize to become

flexible and competitive in the new economy, which has been creating opportunities for small to medium enterprises to subcontract on some of the outsourced business processes (James, 1997; Stark and du Plessis, 2004). Sustainability of human capital is an important issue due to the lack of skills in the new economy created by the rapid rate of technological developments (Dylick and Hockerts, 2002; Kruger, 2003). The new economy which characterises the 21<sup>st</sup> century business environment requires highly skilled workers who are continuously trained to handle the changing technologies (Drucker, 1997). The knowledge will continuously change in the new economy, so this will cause businesses to create a continuous learning culture. The emerging markets of Asia have also become the focal point for investments due to saturated market growth in developed countries (Khanna, 2005; Davies, 2005); the emerging markets are also the fastest growing markets for products and services (Khanna, 2005). The South African government has identified small to medium enterprises as drivers for growth and the alleviation of unemployment (Ladzanil, 2001). The 21<sup>st</sup> century will be dominated by the small to medium enterprises which would have competitive advantages over the larger firms (James, 2003). HIV/AIDS has become a serious threat to the South African economy and it will soon become a social responsibility for all companies to provide medical incentives to employees (Human Research Council, 2003). Migration of skilled workers from one country to another in search of greater financial security for themselves and their families has become a major issue in the current global modern day economy (internet 1). The movements of highly skilled workers across national borders have been increasing due to the rising global demand for skills created by the huge growth in information and communication technologies (internet 1).

All of the issues listed above indicate the factors which need to be taken into account in the new economy by firms large and small in regard to strategic choices and decision making. According to Mintzberg, strategies will emerge as the external environment, customer trends, government regulations and competitor innovations continuously change (Mintzberg, 1991; Downs, Durant and Carr, 2003). It is important for companies large and small to perform strategic management. According to survey research performed by Matzler et al., (2005) to help managers determine which business

management concepts will be of significant importance in the coming years, the following was established: Shareholder value is out; strategic planning emerges as one of executive's favoured tools which assist in sharpening strategies and preparing managers for an increasingly difficult path to achieve growth. Proven disciplines like strategic planning and core competencies were once again commended for helping companies stay on course (Rigby, 2003).

The information above proves that strategic planning and strategic management is important for a small to medium enterprise such as Amalahle Maintenance Services (AMS) to survive and ensure its strategic objectives are in line with the changing external environment (Ehlers and Lazenby, 2004). These firms would be required to position and reposition its strategies continually to achieve competitive advantages (Mintzberg, 1991). Therefore the aim of the study is to determine and resolve the possible strategic gaps in Amalahle Maintenance services, a small to medium enterprise operating within the Power Generation industry of Eskom. The next section will provide background information on Amalahle Maintenance services, the company history, its mission and services offered.

## ***1.2 Background of company***

This section describes the history, mission and services offered by AMS.

### **1.2.1 Company History**

AMS has been an established maintenance, operating and cleaning service provider on materials handling plants since 1998. AMS has been involved with various projects at Majuba, Tutuka and Camden power stations (Eskom). At Majuba the company is responsible for the entire coal and ash plant maintenance, tippler plant operating and cleaning. AMS successfully installed the blocked chute detectors at Tutuka Power Station. The company also completed the conveyor refurbishment at Camden Power

Station under Golfview Mines. The company is black empowered and currently has 63 people in its employ, with an affirmative action ratio of 62%.

### **1.2.2 Company Mission**

According to Hitt, Ireland and Hoskisson (2001) the strategic mission is a statement of the unique purpose and the scope of operations in product and market terms of AMS. According to Kroon, Fourie and van der Walt (2004), most small businesses do not have a written mission and vision; these companies also spend less time in formulating a mission and vision. According to Waddock and Smith (in Kroon, Fourie and van der Walt 2004), a shared vision translates the envisaged strategic objectives into a mission with consistent messages for customers, directors and employees and aligns it with the businesses operating practices. The mission of Amalahle Maintenance Services represents what the company wants to achieve or become in the future (Hill and Jones, 2001)

The mission of the firm is to provide a cost effective, efficient, quality and safe preventative and breakdown maintenance service, plant operating and cleaning service to industrial material handling plants. The firm also aims at ensuring the reliability and availability of the plants maintained.

### **1.2.3 Services offered by AMS**

The company provides the following services: mechanical maintenance, electrical maintenance, control and instrumentation maintenance, tippler plant cleaning and operating and laser alignment of pumps.

The company has been successful in achieving its objectives of growing and sustaining its competitive advantage because it has been able to grow from five members who provided the maintenance service in 1998 to the current count of 63 people within the company. This is a significant achievement considering the high failure rate of 70 to 80% among small to medium enterprises in South Africa (van Eeden, Viviers and

Venter, 2003). The next section will critically review the literature on the strategic management process.

### ***1.3. Literature Review***

This section reviews the literature dealing with strategic management process and provides an indication of how the framework for determining and resolving the possible strategic gaps existing in Amalahle Maintenance Services was developed. Since the strategic gaps are unknown a framework has been developed to explore the situation faced by the firm, to evaluate the current situation to determine the strategic gaps and provide recommendations concerning these gaps. Thereafter a review of the small to medium enterprises including the definition, impact of the new economy strategy trends and the reasons for failures among small to medium enterprises will be performed. This section also presents a comparison of strategy theories to assist in determining which theories are relevant to the company. A review of the industrial maintenance techniques and industrial safety will also assist in determining the internal processes required by the firm.

#### **1.3.1 Strategic Management Process**

According to many academics, strategy is not an exact science as there are no formulae for calculating the company strategy (Robson, 1994). Strategic management is to read the signs and trends of the future and to place the correct interpretation upon them in order to choose an appropriate direction for the future development of the organisation (Robson, 1994). According to many theorists, the more general themes that have been extrapolated are set out below:

Strategy defines business scope and growth direction, must define what business the company is in or what kind of company it is or is to be. Strategy is to give a company its purpose, end goal and short-term objectives of reaching its end goal. Strategy formulation involves the interpretation of the environment. Strategy shows how a firm is going to compete, and a good strategy must be able to utilize the internal resources to gain a unique position. Strategy must be positioned to overcome external threats,

improve on internal weaknesses and match the strengths of the company to the opportunities in the external environment (Robson, 1994:4). Strategies must help a firm to achieve a long-term sustainable competitive advantage (Porter, 1996; Hitt, Ireland and Hoskisson, 2003).

In terms of the ideas of Pearce and Robinson (2003), strategic management for Amalahle Maintenance Services is the set of decisions and actions that results in the formulation and implementation of plans designed to achieve the company's goals of providing cost effective, reliable and efficient maintenance service. Research has shown small to medium enterprise such as AMS lack strategic management and are only involved in the day to day operations (Hannon and Atherton, 1998).

Strategy Formulation guides the directors of AMS in defining the business in which their firm is engaged, the end goals it seeks, and the means it will utilise in accomplishing the goals (Pearce and Robinson, 2003). Pearce has indicated that the purpose of the strategy formulation process is to develop a competitive plan of action. According to Pearce and Robinson (2003), the strategy formulation process includes a future- orientated perspective with an analysis of Amalahle Maintenance Services internal and external environments, an analysis of alternative strategies, and strategic choice. The strategy implementation process is the action phase of Amalahle Maintenance Services and is the implementation of the chosen strategies by the company (Pearce and Robinson, 2003).

The strategic management models developed by Johnson and Scholes (in Robson, 1994); Hitt, Ireland and Hoskisson (2003); Hill and Jones (2001); Pearce and Robinson (2003) presented in appendices A, B, C and D respectively are rational models utilised to formulate and implement value creating strategies. Since the purpose of the study is to identify the possible strategic gaps a review of the above models assists in developing a framework to explore and analyse the current strategic situation and provide recommendations concerning the possible strategic gaps. The recommendations are provided according to the theories reviewed. According to Johnson and Scholes (in Robson, 1994) the strategic management process is made up of the following three

parts: strategic analysis, strategic choice, and strategy implementation. The strategic analysis includes an analysis of the external and internal environments to determine the current situation faced by Amalahle Maintenance Services (Robson, 1994). The strategic analysis also contributes to the development of the strategic options by performing a SWOT analysis on the strategic analysis (Hill and Jones, 2001). The strategic choices includes a set of business level, functional level and corporate level strategies which must be developed with respect to the current and future external environmental trends faced by the organisation (Hill and Jones, 2001). The strategy implementation requires that the strategic objectives set by AMS must be implemented with action plans (Pearce and Robinson, 2003).

Possible strategic gaps would occur if AMS strategic choices were mismatched with the current environmental circumstances. Other possible strategic gaps would occur if there were a mismatch between the strategic objectives and the implementation process, that is, the strategic objectives were not implemented as set out. Since the possible strategic gaps are unknown the study will include the three processes identified by Johnson and Scholes (in Robson, 1994) which includes the strategic analysis, strategic choice and strategy implementation to determine the current situation faced by the organization. The strategy analysis would include an external and internal environmental analysis, whilst the strategic choice would include the business level and functional level adapted from the three Strategic management process models by Hill and Jones (2001); Hitt, Ireland and Hoskisson (2003); and Pearson and Robinson (2003). The business and functional levels have been chosen due to AMS providing a single-dominant maintenance service (Pearce and Robinson, 2003). The strategic choice section will concentrate on the functional and business level strategies. The strategy implementation process includes the following segments: controls, culture, structure, and leadership which are adapted from the four strategy management process models on the assumption that AMS lacks strategic planning and management. This assumption is made in the light of the research performed on the reasons for failures among small to medium enterprises, indicating a lack of strategic management among small to medium enterprises (Hannon and Atherton, 1998). Research performed by Montserrat (2003) indicates the success of small to medium enterprises is linked to the alignment of the

strategy and the managerial characteristics of the owners and directors. The study will therefore include the formulation and implementation processes.

Once the current situation of the firm has been determined according to the strategic analysis, choice and implementation, the analysis will be performed on each of the three categories to determine the strategic gaps. The strategic analysis would include the following analyses techniques (Bensoussan and Fleisher, 2003):

- STEEP which will determine the gaps between the AMS current strategy and the external environment trends;
- functional capability and resource analysis which would determine if the resources are rare, valuable and inimitable;
- competitor analysis will determine the current and future competitors and the effects on AMS current competitive position;
- industry analysis to determine the profit potential of the contract maintenance;
- stakeholder analysis to determine the stakeholders influence on the company, and the;
- SWOT analysis technique to determine the strategic options available to AMS

Thereafter the analysis would be performed on the strategic choices to determine the gaps between the strategic choice and the strategic analysis. The analysis techniques utilised are as follows: SWOT interaction matrix which evaluates the current strategies of AMS and the strategic options identified by the SWOT analyses (Bensoussan and Fleisher, 2003). This technique also determines the amount of change required between the current strategies and the evaluated strategic options.

The industry life cycle, positioning and value chain analysis have been adapted from the testing suitability model of Johnson and Scholes (1998). The portfolio and business profile analysis has been excluded from the study because AMS provides a single and dominant maintenance service.

The industry life cycle analysis technique is utilised to assess if the current strategies together with the strategic options are appropriate to the contract maintenance industry life cycle (Johnson and Scholes, 1998). The positioning analysis technique determines



the resources required for each strategy and also determines if the strategies reduce the costs, add value to AMS current customers and also if the resources are sustainable and difficult to imitate (Johnson and Scholes 1998). The value chain analysis technique determines if the strategies chosen improve value for money and the competitive position of AMS (Johnson and Scholes, 1998). The grand strategy matrix recommends grand strategies according to the current situation faced by AMS by external growth through joint ventures and mergers to overcome weaknesses or maximise strengths (Pearce and Robinson, 2003). The grand strategy cluster determines if the maintenance industry is experiencing rapid or slow growth and if AMS has a strong or weak position within the industry and provides recommended grand strategies for the situation faced by the company (Pearce and Robinson, 2003). The implementation category is evaluated by comparing the current structure, leadership, culture and controls determined by the case study to the theories presented in Chapter Two of the respective categories.

The recommendations are provided on the each of the analysis categories of the strategic analysis, strategic choice and strategic implementation. The framework to determine, analyse and provide recommendations on the possible strategic gaps is in Figure 1.3. This framework is further discussed in Chapter Two. The next section reviews literature on small to medium enterprises.

### **1.3.2. Small to medium enterprises**

- *Definition of small to medium enterprises:* The Organization for Economic Co-operation and Development defines SMEs as firms with less than 500 employees (internet 14). According to the National Small Business Act 102 of 1996 AMS is defined as a medium enterprise since it has an annual turnover between R4 million to R50 million, fewer than 100 employees but more than 50, and gross assets excluding fixed property between R2 million to R18 million (internet 2).
- *Impact of Strategy on Small to medium Enterprises:* The study by Kotze (2003) indicates the variables required for success in the new economy. The variables

identified by Kotze (2003) give small companies the following advantages: low costs, closer to customer needs and wants, quick response to changing customer needs, and these firms are able to compete on knowledge and intangible assets due to the lack of financial resources. On the other hand, small companies have the following disadvantages: lack of differentiation which includes meeting customer quality standards, lack of continuous improvement due to lack of resources, lack of strategic management creates problems in regard to flexibility which means the company is not fast and innovative in switching competitive positions as the environment and competitive positions change (Van Eeden, Viviers and Venter, 2003). The strategic management process helps companies predict the future direction and align the firm to the external business environment (Porter, 1996). A lack of strategic management leads to business failure. Therefore this is the reason for the high rate of failures among small to medium enterprises in South Africa. According to Ehlers and Lazenby (2004) small and entrepreneurial businesses must monitor the strategies chosen and adapt these strategies according to the changing environment. The theories of Ehlers and Lazenby (2004) have also indicated that the difference between the small and large businesses is the impact of limited resources and the access to the resources. The larger organizations, therefore, have flexibility with strategic choices, whilst small organisations make strategic choices with respect to growth according to their resources (Ehlers and Lazenby, 2004).

- *Reasons for failures among small to medium enterprises:* The table below describes the reasons for failures among small to medium enterprises.

Figure 1.1: Reasons for Failures among Small to Medium enterprises

Categories contributing to failures among SMME	Subcategories for failures among SMME
1. Macro-Environmental Issues	<ul style="list-style-type: none"> <li>• Economic growth, interest rates</li> <li>• Inflation rates, exchange rates</li> <li>• Social Issues</li> <li>• Lack of resources</li> <li>• Changing technology</li> </ul>
2. Market/Competition Issues	<ul style="list-style-type: none"> <li>• Industry changes, complexities, market imperfections.</li> <li>• Increased competition and oversupply</li> <li>• Low demand and limited market growth.</li> </ul>
3. Management Skills and Attitude	<ul style="list-style-type: none"> <li>• inexperience and lack of training</li> <li>• Unwillingness and inability to grow.</li> <li>• Excessive emphasis on financial gains.</li> </ul>
4. Management Actions	<ul style="list-style-type: none"> <li>• Inability and failures to perform selected general and strategic management tasks</li> <li>• Lack of commitment</li> </ul>
5. Human Resource Issues	<ul style="list-style-type: none"> <li>• Failure to adjust organisational structures</li> <li>• Lack of human resource training and development</li> </ul>
6. Production/Operations Issues	<ul style="list-style-type: none"> <li>• Lack of quality control systems</li> <li>• Lack of capacity planning</li> </ul>
7. Marketing	<ul style="list-style-type: none"> <li>• Inability to identify target markets and conduct research.</li> </ul>

*Source:* Van Eeden and Viviers and Venter (2003:15)

The shortcoming of the research approach is that a large population was selected from Cape Town, whilst much smaller populations were selected from the other metropolitan areas in South Africa. Generalisations with respect to the problem areas were biased and

reflected the problems experienced in Cape Town. This was predominantly with respect to the external environmental factors. The strengths of the study are its ability to identify common reasons for failure among small to medium enterprises especially with management-related problems (Ehlers and Lazenby, 2004). A study performed by Ball and Shank (in Van Eeden, Viviers and Venter, 2003) also revealed that a lack of managerial skills was the greatest deficiency in small to medium enterprises. The failures identified in the study indicate the components of the strategy management process, with marketing forming part of a business level strategy, production, operations and human resources being apart of a functional level strategy, management skills and behaviour forming part of the implementation process, and macro-environment and competition also being part of the strategy management process as indicated by the theories of Hitt, Ireland and Hoskisson (2003). This study emphasises the importance of strategic management in small to medium enterprises.

Quin (in Hernandez et al., 2004) recommends that medium sized firms adapt to changes in the external environment. The 1991 theory of Mintzberg theory stipulates that companies strategies emerge over time as they compete in the business environment. Porter argues that strategies are rational and must be deliberate so as to position the company differently to competitors (Porter, 1996). In the new competitive environment, dynamic changes occur. Since small to medium enterprises follow a functional approach to business and lack strategic management, this leads to the adoption of a survival mentality adopted by the firms (Van Eeden, Viviers and Venter, 2003). Research has shown small to medium companies performing rational or formal strategic planning are more successful than companies which follow more non-formal strategic planning (Gibbons and O'Connor, 2005).

Ehlers and Lazenby (2004) also identify the reasons for failures among small to medium enterprises as the following: the small ventures are lured into opportunities which places the company at a risk as they take on much more than the resources can handle, and also a lack of resources to enable the firm to achieve rapid growth. The next section compares various strategy theories to determine theories relevant to AMS.

1.3.3 Comparison of strategy theories

The figure 1.2 below compares the assumptions, goals, performance driver, strategy and success of the Five Forces, Core Competences, Game Theory and Competing on the edge strategy theories.

Figure 1.2: Comparison of strategy theories

	Five Forces	Core Competences	Game Theory	Competing on the edge
Assumptions	Stable Industry Structure	Firm as a bundle of competency	Industry viewed as a dynamic oligopoly	Industry in rapid unpredictable change
Goals	Defensible Position	Sustainable Advantage	Temporary advantage	Continuous flow of advantages
Performance Driver	Industry structure	Unique firm competencies	Right moves	Ability to change
Strategy	Pick an industry, pick a strategic position, fit the organisation	Create a vision, build and exploit competencies to realize vision	Make the right competitive and collaborate moves	Gain the edges, time pace, shape semi-coherent strategic direction
Success	Profits	Long-term dominance	Short-term wins	Continual reinvention

Source: Laxton (2002)

Figure 1.2 compares the various theories and indicates the importance of these theories to the new economy. The AMS market environment is more stable due to the three year contract period. AMS would be able to follow Porters Five Forces theory by seeking a strategic position which fits the organisation aiming at profitable growth (Hill and

Jones, 2004; Laxton, 2002). The firm is a small to medium enterprise and lacks the financial resources to achieve rapid growth (Ehlers and Lazenby, 2004). The company therefore needs to compete by continuously building its core competence to ensure a long-term dominance of the current contracts (Laxton, 2002). This will enable the firm to have a unique mix of products which adds value to the existing contracts, thereby achieving a sustainable competitive advantage (Porter, 1996). The company can also create growth by choosing a profitable strategic position which fits the organization's capabilities and resources (Porter, 1996). The firm must build from its current core competencies through incremental growth (Fourie and Mansfield, 2003). The next section reviews the theory on the various industrial maintenance techniques.

#### **1.3.4 Industrial Maintenance**

According to Stevenson (2002) maintenance is defined as the activities performed by AMS to keep the ash and coal conveying plant equipment in good working order and making repairs when breakdowns occur, so the plant can function as intended.

Breakdown maintenance is a reactive approach to plant problems, that is, dealing with problems or breakdowns when they occur and to run equipment to failure (Stevenson, 2002). According to Rockwell Automation, "Industrial Condition Monitoring Overview, (2005)" the advantage of breakdown maintenance is no scheduling is required due to some equipment being cheaper to replace than repair. Some of the disadvantages connected to breakdown maintenance are unplanned production losses, catastrophic equipment failure, high inventory costs and secondary machine damage (Rockwell Automation, 2005).

Preventative maintenance or time based maintenance is a proactive approach to reduce breakdowns through a programme of lubrication, adjustment, cleaning, inspection, and replacement of worn parts (Rockwell Automation, 2005). The advantages of preventative maintenance are longer machine life, reduced production downtime, and lower spare parts inventory (Rockwell Automation, 2005). The disadvantages are unplanned production losses, some catastrophic equipment failure, repairs are initiated

before problems exist, and resulting in higher costs and possible maintenance induced failures (Rockwell Automation, 2005).

Predictive maintenance is a planned inspection or testing of machinery to non-intrusively determine equipment health (Rockwell Automation, 2005). It is a technique utilised to determine when to perform preventative maintenance activities (Rockwell Automation, 2005). It is based on historical records and analysis of the various technical data to predict when a piece of equipment is about to fail (Rockwell Automation, 2005). The advantage of predictive maintenance is the reduction in unscheduled production downtime (Rockwell Automation, 2005). This allows maintenance and repair intervals to be extended, unnecessary repairs are minimized, and there is a further reduced spares inventory (Rockwell Automation, 2005). The disadvantages are the initial investment and commitment to change (Stevenson, 2003).

Proactive Maintenance determines the root cause of failures and focuses on extending the equipment life (Rockwell Automation, 2005). The advantages of proactive maintenance are the minimal downtime of equipment and the elimination of the root cause of failures (Rockwell Automation, 2005). The disadvantages with proactive maintenance are the skills required, engineering involvement, commercial perspective and ongoing investment (Rockwell Automation, 2005).

The Reliability Centered maintenance (*RCM*) approach to the preservation of a systems function acts by selecting and applying effective preventative maintenance tasks (internet 3). RCM focuses on function rather than task. RCM techniques are utilised by Power Stations due to the large and complex processes, and integrative nature of the systems (internet 3). The systems maintained by AMS are also integrative as the coal and ash plant affects and is affected by other systems such as the Mills plant which crushes the coal into pulverized fuel, the boiler which produces coarse ash which is transported by the ash conveyors to the ash dump and also the fabric filter plant which transports fly ash from the boiler to the dust handling plant. The principles which define and characterize the RCM process are (internet 3):

- preservation of the Ash and Coal Plant function;
- identification of specific failure modes to define loss of function or functional failure;

- prioritization of importance of the failure modes, according to safety and production loss;
- identification of effective and applicable preventative maintenance tasks for the appropriate failure modes.

The RCM process requires AMS employees to gain a thorough understanding of the entire ash and coal plant process function in order to determine the failure mode affects of each system, subsystem and equipment (internet 3). The next section reviews the literature on industrial safety.

### **1.3.5 Industrial Safety**

- The Occupational Health and Safety Act of 85 of 1993 of South Africa indicate that firms are legally required to provide a safe working environment for all of its employees (du Plessis, Fouche and van Wyk, 2001). Since AMS has more than 20 employees the firm is required to have legal appointments and a proper safety management system to ensure risks are identified to work safely on the plant (du Plessis, Fouche and van Wyk, 2001). The legal appointments include safety representatives and safety officers (du Plessis, Fouche and van Wyk, 2001).

### ***1.4. Motivation for the research***

Eskom is currently expanding its generation capacity by bringing back to service the three previously decommissioned power stations (Business Day, 2004). Eskom will spend 165 billion rands in the next eight years on refurbishments, returning to service the decommissioned stations, and building new power stations (Business Day, 2004). This affords AMS the opportunity to penetrate this market. This study will therefore determine possible strategic gaps that prevent AMS from targeting these opportunities within power generation.



AMS currently relies on Majuba Power Station for its survival. Since 1998 many small contracting companies have lost their contracts due to poor strategic planning. This study will determine the possible strategic gaps that prevent the firm from renewing the existing contracts and achieving a sustainable competitive advantage. The directors of AMS chose to provide a maintenance service to Majuba Power Station on the ash and coal conveying plants due to a deliberate opportunity in 1998. The study will determine the changes of the maintenance services industry within power generation and the possible strategic gaps in the firm's strategy in meeting the industry changes.

### ***1.5. Value of the project***

The research project will identify the problem areas within Amalahle Maintenance Services. Thereafter necessary recommendations will be presented in Chapter Five to assist the company in moving towards its strategic objectives and goals. This study will enable the members of the firm to determine the problem areas with respect to the strategies formulated and implemented. This study will also assist in determining the direction for the firm.

### ***1.6. Research question***

What are the possible strategic gaps which exist between the current strategic choices made by the firm and the strategic analyses, and also what are the possible strategic gaps between the implementation and strategic choices? How can these potential strategic gaps be resolved?

Since the strategic gaps are unknown, the strategic management process has been utilised to determine the possible strategic gaps. The strategic management process is utilised by companies to formulate and implement strategies and consists of the following segments: strategic analysis, strategic choice and strategic implementation (Robson, 1994). The strategic analysis is performed to determine the current situation faced by the firm by performing an analysis of the external environment which includes the remote, industry and operating environments and the analyses of the firm's internal environment. This includes an analysis of the firm's current resources tangible and

intangible, capabilities and core competencies. The strategic choices are then made, taking into account the firm's current and future external and internal environmental circumstances. Once the strategic choices have been made, the firm follows with the implementation phase of the strategic management process. The strategic management process explained above lays the foundation for identifying the possible strategic gaps of AMS. The possible strategic gaps would exist if AMS has not matched its strategies with the external environment and a mismatch also exists between the strategic objective set by the strategies chosen and the implementation segment. This approach has been adopted because the study is exploratory. Therefore a framework had to be determined in advance to determine the current strategic analysis, strategic choice and strategic implementation of AMS, after which an analysis could be performed on each segment of the strategic management process to determine the strategic gaps. Once the strategic gaps have been determined, the necessary recommendations can be provided.

### ***1.7 Objective of the study***

The objectives are listed below.

1.7.1 Determine the current strategic analysis, strategic choice and strategy implementation by utilising the segments identified in the strategic management process models in appendices b, c and d. These segments were chosen on the assumptions of AMS providing a single dominant maintenance service, and also that small to medium enterprises lack strategic management capabilities (Hitt, Ireland and Hoskisson, 2003; Van Eeden, Viviers and Venter 2003).

- The strategic analysis will include the remote, industry, operating environments, and the internal environment which has the segments of resources, capabilities and core competencies.
- The strategic choice will include the functional and business level strategies.
- Strategy implementation will include the segments of structure, leadership, controls and culture.

1.7.2 Evaluate the current situation identified in the strategic analysis, strategic choice and strategy implementation to determine the strategic gaps. Determine the strategic options.

- Strategic analysis will include the following analysis techniques that would be utilised to analyse the segments identified in 1.7.1 above: STEEP, functional capability and resource analysis, competitor analysis, industry analysis, stakeholder analysis, and SWOT analysis (Fleisher and Bensoussan, 2003)
- Strategic choices would include the following analysis techniques, SWOT interaction matrix, industry life cycle, positioning, value chain to test the suitability of the current strategic choices and strategy options developed by the SWOT analysis, the grand strategy matrix and grand the strategy cluster model (Fleisher and Bensoussan, 2003; Hill and Jones 2001, Johnson and Scholes, 1998)
- Strategic implementation is evaluated for strategic gaps by comparing the theories in Chapter Two to the data in Chapter Three with respect to the following segments: structure, controls, culture and leadership (Hill and Jones, 2001; Hitt, Ireland and Hoskisson, 2003). The management profiling analysis technique is utilised to determine the leader's personality profile (Fleisher and Bensoussan, 2003). This section falls within the leadership subcategory.

1.7.3 The final step is to establish recommendations concerning the strategic gaps identified in each of the categories and subcategories of the analysis section of 1.7.2.

1.8 Research Design and Methodology

Figure 1.3: Research Methodology steps and a Framework to determine and evaluate the current situation, and provide recommendations for the possible strategic gaps.

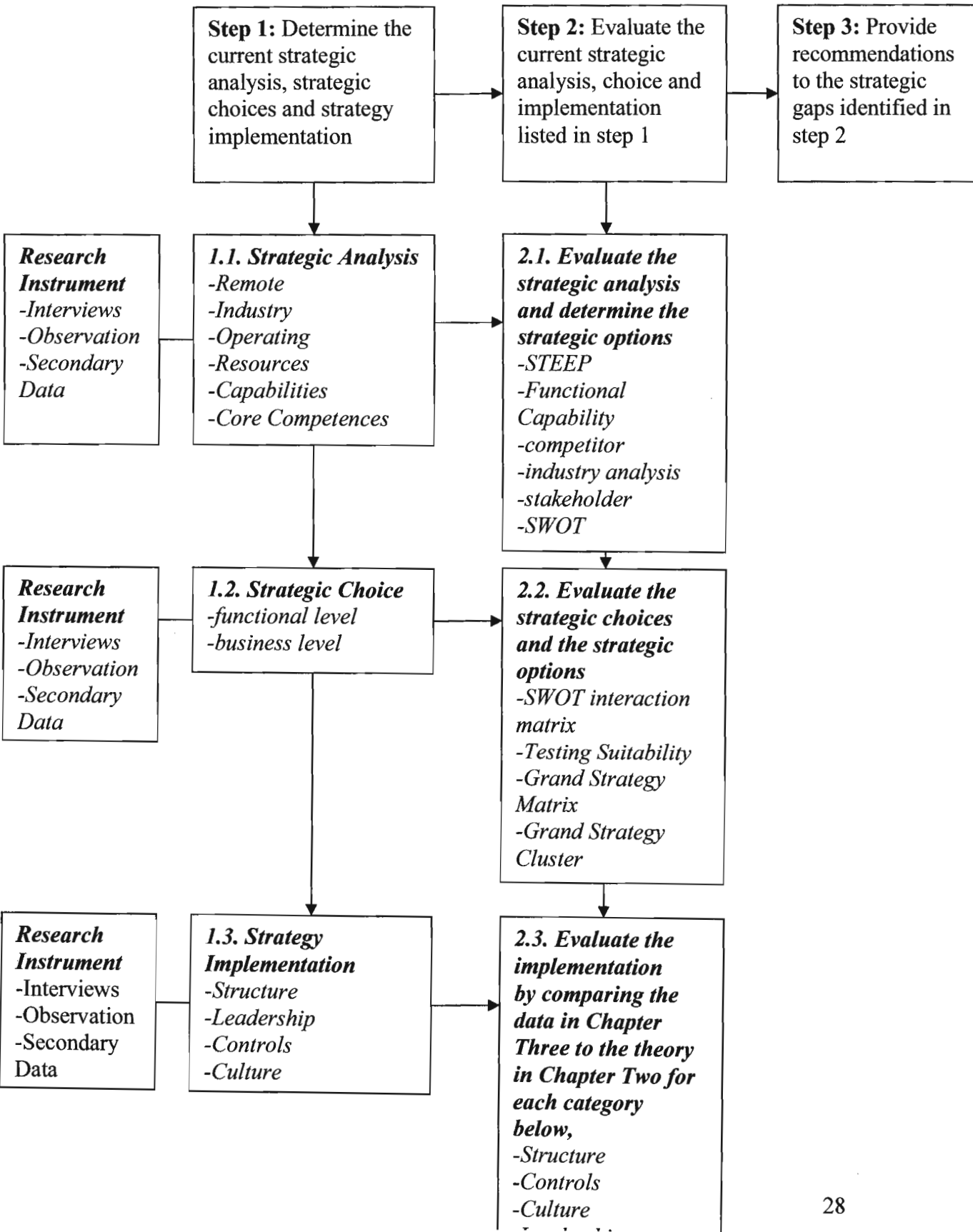


Figure 1.3 depicts the research methodology as indicated by the objectives of the study in section 1.7. The case study research strategy has been chosen and the study takes the form of a qualitative exploratory research project. According to Zikmund (1997), exploratory research is performed to clarify ambiguous problems and information is required to help analyse a particular situation. Therefore, this study will determine the current situation faced by the firm according to the categories and subcategories of the framework in Figure 1.3 after which it will be analysed. The data collection methods chosen are as follows interviews, participant observations and documentary written secondary data, multiple source time series based secondary data and survey secondary data (Saunders, Lewis and Thornhill, 2003).

### **1.8.1 Rationale for the case study**

The case study research method has been chosen to determine the possible strategic choice and implementation strategic gaps according to the strategic analysis. The study will also provide the necessary solutions to the possible strategic gaps identified for AMS. The research will be qualitative in nature and will take the form of a case study. Qualitative research is an unstructured, exploratory research method based on small samples intended to provide insight and understanding of the problem setting (Saunders, Lewis and Thornhill, 2003).

The case study research method is often erroneously equated with descriptive teaching cases, whose purpose is only to assist in action related analysis of real situations (Saunders, Lewis and Thornhill, 2003). However, case research is a research methodology that meets the requirements of rigorous academic research of complex, contemporary topics (Yin, 1994).

The case study method allows an investigation to retain the holistic and meaningful characteristics of real life events (Leedy and Omrod, 2005; Miles and Huberman, 1994). The study is well suited to a qualitative research method since the problem of identifying the possible strategic gaps has many aspects and cannot be tested through hypothesis. According to the theories of Leedy and Omrod (2005), qualitative research is well suited to situations where the variables are unknown. This theory by Leedy

(2005) helps justify once again the relevance of a qualitative research method to the study at hand. Since the problems within the company are unknown, a strategy framework will be adopted to evaluate the gaps between the theory and application, thereby constituting a study of an unknown variable. The research question in the study is general and therefore lends itself to a qualitative research method (Yin, 1994). According to the theories of Peshkin, 1993 identified in Leedy and Omrod (2005), the qualitative research method is appropriate for the study at hand so as to evaluate the company's strategy in order to determine the problem areas. Research case studies need to be concerned with the rigorous and fair presentation of empirical data (Yin, 1994). The case study is preferred in examining contemporary events, when the relevant behaviors cannot be manipulated (Yin, 1993).

Case study research is not suited for testing closed yes/no hypothesis, instead a case study research method strategy may be used to explore the real life effects of business problems (Yin, 1994). Leedy and Omrod (2005) agree and state that qualitative research is characterised by general research questions rather than specific hypotheses. The data gathering entails collecting extensive amount of verbal data from a small number of participants (Yin, 1994). During the analysis phase data is organised into a coherent format and the situation is portrayed using verbal description to state tentative answers the research questions (Leedy and Omrod, 2005).

According to Yin (1994) the case study approach is well suited to exploring those situations in which the intervention being evaluated has no clear, single set of outcomes. Case research is seen as appropriate in situations when explanations of causal links are too complex for survey or experimental methods, so that single, clear outcomes are not possible (Leedy and Omrod, 2005). The application of this methodology is particularly useful when studying contemporary phenomena within a dynamically changing real life context (Yin, 1994). This study will therefore take the form of a case study, as this is the most appropriate research method for the research question identified in the earlier sections. The study utilises purposive sampling to determine the current strategic analysis, choice and implementation (Saunders, Lewis and Thornhill, 2003). The

purposive sampling is utilised in the case study to determine the possible strategic gaps (Saunders, Lewis and Thornhill, 2003; Denzin and Lincoln, 2000).

### **1.8.2 Description of the facts related to the case**

This study included interviews of the maintenance managers, C&I Maintenance manager, Eskom buying department and a maintenance consultant who is currently busy with maintenance projects at Camden power station and Grootvlei power station. Due to the confidentiality of information in the power generation industry, it was not possible to set up interviews with some of the managers. Therefore, the study concentrated on the key maintenance managers identified above. The case study included participant observation and in-depth interviews with the directors and employees of Amalahle maintenance services. Observations were done on a weekly basis over a two month period and during the course of the study observations and interviews were carried out over a two week period over consecutive days. Interviews and observations were also performed with the Eskom ash and coal plant supervisors. During the two week period where interviews and observations were performed, a thorough observation was conducted with respect to safety, quality, and maintenance standards whilst the employees and supervisors were busy performing their daily tasks on the plant.

### **1.8.3 Description of data collected**

- *Observations made:* these included morning production meeting, directors meetings, work performed on plant, quality, safety, maintenance and operating procedures followed by the employees, leadership styles among the directors and supervisors, values and norms within the company, respect and authority within the company, if the company follows its strategic objectives. They covered structures and reporting structures, integration among the various Eskom departments, cleaning contractors and AMS, and also the spares management, if the company employees and directors are aware of the opportunities and threats in the external environment, and are familiar with the company's mission and vision.

- *People Interviewed:* these included directors, employees, Eskom supervisors, and Eskom managers. Face to face interviews and focus groups were also performed. Unstructured interviews were performed, but a few questions were prepared in advance to make sure all the questions will be answered during the course of the interview. According to Robson (in Saunders, Lewis and Thornhill, 2003) unstructured interviews also referred to as in-depth interviews are very helpful to find out what is happening and to also seek new insight, which is part of an exploratory study. The interview questions were related to the research problem. The model developed in Chapter One (literature review) assisted with the formulation of unstructured interview questions on strategy. The theory was therefore very helpful in determining the direction of the questions and study. During the interviews, the respondents were not asked to reply to all the questions due to the answers that emerged from prior questions. Leading questions were avoided so as to ensure the validity of the data collected. The maintenance manager for Majuba power station was chosen for a face to face interview due the high level of decision-making authority within the organisation. The maintenance managers are involved in meetings with other maintenance managers, power station managers and the power generation group director. This therefore helps with the validity of the data because of the decision-making authority the maintenance managers have. Some of the interviews were done in an isolated boardroom away from all personnel. This helped to ensure the validity and reliability of the data. The interview process ensured trust and respect and an interest in whatever was asked.
- *Documents examined:* these included financial statements, quality manual and system, safety manual and system; NEC contact documents for the various contracts; quality control plan documents; company minutes of meetings and tender documents; Eskom website documents; media documents with respect to Eskom power generation; company management files with structures; key performance indicators; Eskom information management system indicating the



long outstanding preventative maintenance and defects job cards, and awaiting spares.

#### **1.8.4 Deductive or inductive approach**

A study on a company's strategic management process often has ambiguous, complex causal links that are difficult to explain without investigating their context (Saunders, Lewis and Thornhill, 2003). The study therefore appears to be ideally suited for a case research approach that endeavours to investigate the research problem within the context of the firm where they occur (Leedy and Omrod, 2005).

As there is a considerable existing theory base related to strategy, strategy formulation, and strategy implementation, this research, on a continuum between induction and deduction, adopts a largely deductive approach (Saunders, Lewis and Thornhill, 2003). Theory will be used to formulate interview questions. The data gathered will be tested against existing theory. Developing a theory first and then testing the theory in a real life situation is a deductive approach (Saunders, Lewis and Thornhill, 2003). An inductive approach involves exploring the data and developing a theory after the data has been explored (Saunders, Lewis and Thornhill, 2003). The study is also an exploratory research project; as the framework for strategy formulation and implementation will be utilised to determine the problems within the company related to the strategic management process (Saunders, Lewis and Thornhill, 2003).

As the purpose of this study is not to construct new theory, the issue of the validation of new theses through replication on a number of case studies (Yin, 1994) is not relevant. One case would be sufficient (Yin, 1994), as the study is confined to Amalahle Maintenance Services only and the research design is specifically for the problem studied.

#### **1.8.5 Triangulation**

According to Leedy and Omrod, (2005) the greatest strength of the case research methodology is that it allows for the collection of evidence from multiple sources

therefore providing a more complete picture of the problem than other research methods allow. In order to confirm the validity of the research process, multiple data sources are essential (Yin, 1993). Documentary analysis and newspaper articles were used to ensure the validity and reliability of the interviews performed with the maintenance managers. The study also included a validity and reliability test of the data from AMS by comparing the primary data through interviews to observations made and finally to the documentary analysis of all documented data. The primary data collected from the interviews with the maintenance managers and AMS employees was tested for validity by testing them against the management information system of Eskom and the current opportunities within power generation.

#### **1.8.6 Data analysis and interpretation**

- *Data Storage:* The data was stored according to the categories and subcategories depicted in the strategic gap analysis tool in Chapter Two.
- *Data Analysis:* The data was analysed by the models and techniques represented in Chapter Two. This study takes the form of a deductive analysis approach, since the predetermined strategic gap analysis model which has been developed from the literature reviewed in Chapter Two was utilized to analyze the data collected in Chapter Three (Saunders, Lewis and Thornhill, 2003).

#### **1.8.7 Validity and reliability**

The issue of reliability refers first to whether the instruments used in the research actually measure what they are intended to measure (Ghauri and Gronhaug, 2002). Instruments that were utilised in the study are listed below.

They were:

- in depth-interviews with key decision-makers, maintenance managers, supervisors and Eskom buyers;
- documentary analysis to determine the current strategic analysis, choice and implementation and to also test validity.

The primary data collected in Chapter Two was compared to the secondary data collected to test the reliability and validity of the data. A convergence has been detected which contributes to the validity of the data collected. The strategic gaps were determined by evaluating the data in terms of the theories presented in Chapter Two. The validity of the data, especially interviews, was compared to the current trends in the outsourced maintenance field.

### ***1.9 Limitations of the project***

There needs to be caution in regard generalisations of this study with respect to future research areas identified in the study. This is because a single case study research method was adopted. The other limitations are the evaluation techniques adopted which will have varying affects on the results obtained. The Eskom power generation has also limited the amount of information given through the interviews. This study will not provide conclusive evidence to small to medium enterprises concerning the way forward, as it studied one organization. The research was an explorative qualitative approach which aimed at determining the strategic gaps. A strategic management process was utilised as a fault finding tool. Limitations exist with this approach, as the techniques utilised to analyse the data were qualitative and depend on the researcher choosing the correct interpretations of the data. The strategic options identified in this study need to be researched more accurately as the purpose of the study was to determine the strategic gaps and thereafter provide recommendations concerning the strategic gaps by making use of the theories and the techniques.

## ***1.10 Structure of the study***

### **1.10.1 Chapter Two**

This chapter provides an in-depth review of the framework developed in Chapter One. The framework is utilised to determine, evaluate and provide recommendations on the possible strategic gaps in Amalahle Maintenance Services.

### **1.10.2 Chapter Three**

This chapter includes a case study research approach on Amalahle Maintenance Services which is explorative in nature and is qualitative. The research instruments utilised are interviews, observations and secondary data which collect the data for each category of the strategic analysis, choice and implementation. The data is represented in the chapter according to the categories of step 1 of Figure 1 and thereafter evaluated in Chapter Four for strategic gaps.

### **1.10.3 Chapter Four**

This chapter analyses the data represented in Chapter Three according to the analysis techniques depicted in Figure 1 research methodology steps. The analysis is performed on the strategic analysis, strategic choice and strategic implementation. The analysis section determines the strategic gaps between the strategic analysis and strategic choices and the strategic gaps between the strategic choices and the strategic implementation.

#### **1.10.4 Chapter Five**

This chapter provides the recommendations for the strategic choice and implementation gaps identified in Chapter Four.

#### ***1.11 Summary***

- Trends in the 21<sup>st</sup> century indicate the importance of strategic management for companies small and large due to changing customer needs, business regulations, and hypercompetitive business environments (Kotze, 2003). Customers seek low cost differentiated products and services. Large numbers of small to medium enterprises are emerging in the new economy because the larger companies are downsizing and outsourcing business process functions to the smaller companies in order to achieve flexibility and business models more conducive to the new economy. Companies in the new economy are competing with knowledge and intellectual capital. The new economy strategy will continue to emerge causing companies to reposition to achieve competitive advantages.
- This study concentrates on determining the strategic gaps in Amalahle Maintenance Services a small to medium enterprise operating within the power generation industry of South Africa. The company provides a maintenance service on the coal and ash conveying plants of Majuba Power Station. Preventative maintenance or time based maintenance is a proactive approach to reduce breakdowns through a program of lubrication, adjustment, cleaning, inspection, and replacement of worn parts. AMS must follow the safety requirements of the occupational health and safety act. The act requires AMS to provide a safe working environment for its employees, customers and suppliers.
- Research has shown that the small to medium enterprises have a low cost advantage and are able to respond more quickly to the customers changing

needs. The disadvantage with the small to medium enterprises is the lack of strategic management capabilities which leads to high failure rates. A comparison of the strategy theories indicates that AMS would be able to follow Porters Five Forces theory by seeking a strategic position which fits the organisation aiming at profitable growth. The firm is a small to medium enterprise and lacks the financial resources to achieve rapid growth. The company therefore needs to compete by continuously building its core competence to ensure a long-term dominance of the current contracts.

- Since the strategic gaps are unknown, a framework was developed to determine and resolve the possible strategic gaps. The framework included the following three steps: step one to determine the current strategic analysis, strategic choice and strategic implementation; step two to evaluate the current strategic analysis, choice and implementation; and step three to provide recommendations to the strategic gaps identified in step two. The research is exploratory in nature as it determines the current situation faced by the firm. A qualitative case study research approach has been chosen because the research is explorative. The motivation for the research to determine the possible strategic choice and implementation strategic gaps is due to the high failure rate among small to medium enterprises and also Eskom's expansion program. The value of the project is to ensure the long-term growth and survival of AMS.

The next chapter provides an in-depth review of the theories related to the framework depicted by Figure 1.3. Chapter Three presents the data collected according to the framework depicted by Figure 1.3. Chapter four analyses the data presented in Chapter Three and Chapter Five provides recommendations to the possible strategic gaps identified in Chapter Four.

## **CHAPTER 2: LITERATURE REVIEW**

### ***2.1. Introduction***

The chapter provides an in-depth review of the framework developed in Chapter One. Step one determines the current strategic analysis, strategic choice and strategic implementation of AMS. Thereafter, step two of the framework evaluates the strategic analysis, choice and implementation. The recommendations are provided for each strategic gap identified in the evaluation process of the framework which is part of step three. Step one is further broken up into the strategic analysis, which includes the following categories: remote, industry and operating environment which forms part of the external environment. This category of the strategic analysis also includes the resources, capabilities and core competencies which is part of the internal environment. The strategic choice of step one includes the business level and functional level strategies which assist in determining the current strategic choices made by AMS. The third level within step one is the strategy implementation which assists in determining the current structure, culture, leadership and controls within the organisation.

Step two is broken up into the evaluation of the strategic analysis, strategic choice and implementation. The evaluation of the strategic analysis is made up of the following analysis techniques which evaluate the strategic analysis of step one: STEEP, competitor, industry, stakeholder, functional capability and resource analysis and the SWOT analysis technique. The SWOT analysis technique is also utilised to determine the strategic options of the firm. The evaluation of the strategic choice and strategic options are made up of the following techniques which evaluate the strategic choices of step one of the framework and the strategic options obtained from the SWOT analysis: SWOT interaction matrix, industry life cycle, positioning, value chain, grand strategy matrix, and the grand strategy cluster. The evaluation of the strategic implementation is made up of the following techniques which evaluate the strategy implementation of step one: structure, controls, culture, leadership, and management profiling. The management profiling technique is utilised within the leadership subcategory.

## ***2.2. Determining the current strategic analysis, strategic choice and strategic implementation.***

### **2.2.1 Determining the strategic analysis**

The strategic analysis comprises the external and internal environments (Robson, 1994). The external environment is a source of opportunities and constraints for AMS (McGee and Sawyerr, 2003). To be effective and even survive, AMS decision-makers must monitor the external environment. For AMS to achieve growth the management team needs to know things such as the availability of finances, human resources and retaliation from competitors (McGee and Sawyerr, 2003). It is therefore important for AMS, being a small to medium enterprise, to network with other companies to attain the required information on the categories identified above (McGee and Sawyerr, 2003). Amalahle has no control over their external environment. The firm must respond to changes in the external environment to remain competitive, achieve growth and renew its current contracts (Bensoussan, 2003). An understanding of the external political, economic, social, technological, environmental and global segments is essential for AMS to predict the trends which will affect the future survival of the firm (Hitt, Ireland and Hoskisson, 2003). According to the studies performed on small to medium enterprises, external environmental analysis is lacking (Van Eeden, Viviers and Venter, 2003). This study therefore determines the current remote, industry and operating environment issue faced by AMS. The company's directors are required to understand the external environment to formulate and implement competitive strategies (Hitt, Ireland and Hoskisson, 2003). The strategic analysis is made up of the following categories: the remote environment, industry environment and the operating environment which form part of the external environment and also the resources, capabilities and core competencies which are part of AMS internal environment (Robson, 1994). The subcategories of each category identified above are discussed in the following sections.



#### 2.2.1.1 Remote environment

According to Hill and Jones (2001) in order for AMS to be successful in achieving competitive advantage and growth, the firm must gather information on each subcategory of the remote environment to understand its implications for the selection and implementation of the appropriate strategies. The remote environment is made up of the following segments: political and legal, economic, socio-cultural, technological, environment and global which are discussed below (Hitt, Ireland and Hoskisson, 2003; Smith, 1999).

##### 2.2.1.1.1 Political and legal

Political and legal factors have a direct affect on strategy formulation (Hitt, Ireland and Hoskisson, 2003). The political and legal factors are the regulatory parameters within which AMS must operate in South Africa (Pearce and Robinson, 2003; Hitt, Ireland and Hoskisson, 2003; Fleisher and Bensoussan, 2003). The business laws which affect AMS are the black economic empowerment policies of South Africa which aim to overcome the socio-economic problems of unemployment, widespread poverty and crime created by apartheid (Human Research Council, 2003). The black empowerment initiative aims at creating investment and business opportunities for the entire population.

According to the Industrial Occupational Health and Safety act of 85 of 1993, AMS is legally required to provide for the health and safety of persons at work and for the safe use of plant and machinery (du Plessis, Fouche and van Wyk, 2002). The company is also required to have the following legal appointments, safety officers and safety representatives (du Plessis, Fouche and van Wyk, 2002)

Environmental protection laws are evident in the new economy due to global warming and changing weather patterns (Dylick and Hockerts, 2002). This section will be covered in the environmental subcategory of the remote environment. Small to medium enterprises are also required to adhere to the South African Revenue Services regulations with respect to financial record keeping, payment of taxes, unemployment

insurance fund, workmans compensation, and the skills development levies laws of South Africa (SARS, 2006).

The small to medium enterprises are also required to adhere to the South African Basic Conditions of Employment Act 75 of 1997 to regulate the right to fair labour practices (du Plessis, Fouche and van Wyk, 2002).

The South African government has also identified the small to medium enterprises as drivers for employment and poverty alleviation and therefore offers the small to medium enterprises *special incentives* (internet 4). Some of the special incentives offered by government to the small to medium enterprises are as follows: a skills support programme which is a cash grant for encouraging investments in training and introducing new advanced skills; small medium enterprise development which is also a cash grant paid to local and foreign investors for starting and expanding their operations (internet 4). The South African government also offers a black business supplier program to assist black empowered companies to improve their core competencies and managerial capabilities. This incentive is utilised for implementing quality management systems (ISO9000) within the company and also specialised enterprise specific skills to employees (internet 5).

#### 2.2.1.1.2 Economic

This segment is concerned with the nature and direction of the economy in which the firm competes or intends to compete (Fleisher and Bensoussan, 2003). AMS must consider economic trends in the electricity industry which affects the contracted maintenance services industry within power generation. The factors which affect AMS are the electricity growth rates, gross domestic product which is a measure of the South Africa's economic growth, the inflation rate which is an increase in the average rate of services and products, and the country's interest rates which are the price paid for the use of money (Schiller, 2000). The other factors which affect AMS are inequality within South Africa and the monetary and fiscal policies adopted by the government (Fleisher and Bensoussan, 2003). A study performed on the relative importance of small to medium enterprises indicates the risks for SMEs are higher when the economy

experiences high interest rates and inflation. This is because SMEs lack of financial resources (internet 2).

#### 2.2.1.1.3 Socio-cultural

According to Fleisher and Bensoussan (2003), the social component describes the characteristics of the social context in which AMS exists.

Some of the major social changes in the new economy have been the entrance of a large number of women into the workforce (Pearce and Robinson, 2003). In the new economy social responsibility is a form of competitive advantage (Cramer, 2002). AMS must include the social aspect in its strategies and policies. South Africa currently is faced with a different set of social responsibility issues which include the following: HIV and AIDS, inequality, poverty, unemployment, education and training (Human Research Council, 2003). The segments identified above will be explored in the chapter three.

John Elkington developed a concept called The Triple-P bottom line, illustrating how a company must create value not only in financial terms, but also in ecological and social terms (Cramer, 2002). Triple-P stands for planet (ecological quality), people (well-being), and profit (economic prosperity). This process clearly identifies the benefits of sustainability. It allows a company to maintain sight of their objectives. There are two types of social capital: human and societal. Human capital revolves around the individual and collective knowledge, skills, and abilities of the group of people to perform the organisational tasks. In the highly competitive new economy companies are continuously required to improve and build the skills and knowledge of their employees to ensure a competitive advantage. The societal capital requires firms to build their communities to ensure a constant supply of labour resources. Companies must constantly train employees, pay for employee education, and donations towards schools. Sustainability of human and societal capital has become a vital theory in the 21<sup>st</sup> century (Cramer, 2002).

#### 2.2.1.1.4 Technological

Burgelman defines technology as the theoretical and practical knowledge, skills and artifacts which are used in the development of products and services as well as their production and delivery system (in Lin, 2003). According to Lin (2003) companies such as AMS with limited research and development resources, are able to achieve sustainable competitive advantage through technology transfer. The competitive advantages for AMS are achieved by accumulating competence through internal technological learning, after technologies have been transferred from external sources such as the larger firms (Lin, 2003).

A disruptive technology is a product or process innovation which redirects the maintenance industry in which AMS operates (The Corporate Strategy Board Secondary Research, Disruptive Technologies, August 1998). A disruptive technology changes the criteria by which AMS customers judge the value of a product or service. A disruptive technology initially shows inferior performance but with time overpowers the sustained technologies due to convenience and price. According to Christensen many established companies have missed the development of the new technologies thereby experiencing a loss of its existing customer base (in The Corporate Strategy Board Secondary Research, Disruptive Technologies, August 1998). To overcome the challenges of disruptive technologies AMS must develop products and services according to customer needs. The company must constantly monitor market trends and match the resources to the opportunities which provide the best returns.

AMS provides maintenance, operating and cleaning services on technologically advanced equipment. Changes in technology affect the ways in which the firm operates and maintains the coal and ash conveying plants. It is therefore imperative for AMS to monitor technological developments within the maintenance services industry which will affect the viability of its current services offered. This segment would include a secondary data research on the current technological developments within the maintenance field.

#### 2.2.1.1.5 Environment

According to Pearce and Robinson (2003) the environment is a reciprocal relationship between business and ecology. Ecology refers to the relationship human beings share with the air, soil, and water and their reliance on these resources (Pearce and Robinson, 2003). The Global climate has been changing for years because of an increase in human activities in an industrial society (Pearce and Robinson, 2003). Global warming is a great concern as this is caused by the change in atmospheric radiation due partly to ozone depletion (Pearce and Robinson 2003). The threats to the environment identified above have forced the Governments around the world to implement highly restrictive and costly environmental legislation relating to businesses (Pearce and Robinson, 2003). Specific threats to the environment include global warming, loss of habitat, and biodiversity, as well as air, water and land pollution (Pearce and Robinson, 2003). The increased government regulations and consumer environmental concerns have contributed to the environmental policies implemented by companies as being a competitive advantage (Dylick and Hockerts, 2002). The environmental laws which currently affect AMS are the storage and removal of hazardous wastes (Occupational, Health and Safety Act 85 of 1993).

#### 2.2.1.1.6 Global segment

According to Hill and Jones (2001) globalization of markets is a growing trend and is the moving away from an economic system in which national markets are distinct entities, isolated by trade barriers and barriers of distance, time, and culture, and towards a system in which national markets are merging into one global market. Globalisation is a threat to AMS which operates in the emerging market of South Africa (Davies, 2005). This is due to the larger more resource rich and effective competitors from developed markets. AMS must monitor international competitors which try to penetrate their existing contracted maintenance services industry. According to Hill and Jones (2003), there has been growth in medium sized and small multinationals.

### 2.2.1.2 Industry environment

The purpose of the Five Forces theory of the industry environment is to identify and analyse major technological and economic factors that will affect the maintenance, operating and cleaning services industry profit potential (Fleisher and Bensoussan, 2003). According to Porter, the industry environment identifies a group of firms providing maintenance services, operating and cleaning which is a close substitute (Fleisher and Bensoussan, 2003). By identifying the attractiveness of the maintenance services industry, AMS will be able to determine the strategic gaps between the firm's external environment and its resources (Hill and Jones, 2001). This means that AMS will be able to build its internal resources according to the opportunities in the external environment (Laxton, 2002). The Five Forces model has the following shortcomings: the model presents a static picture of AMS competition also minimises the significance of individual company differences while emphasising the significance of industry and strategic group structures as determinants of company profit rates (Fleisher and Bensoussan, 2003; Hill and Jones, 2001).

Technology developments are creating less obvious differentiating factors between competitors due to maintenance services being offered by original equipment manufacturers, software manufacturers, and automation manufacturers such as Rockwell Automation (internet 6). In the new economy information technology is able to replace the vast amount of labour required to maintain industrial plants (internet 7). An interaction among all the factors below determines the profit potential of the maintenance services industry (Hill and Jones, 2001). If AMS could favorably influence its maintenance industry environment, it is extremely likely the firm would be able to generate profits.

#### 2.2.1.2.1 Threat of new entrant

It is important to identify new competitors due to the threat to the existing market share of the maintenance services industry (Pearce and Robinson, 2003). Barriers to entrance and the retaliation from current industry participants are factors considered for firms to enter the maintenance services industry. The absence of barriers increases the

probability of new entrants operating profitably within the sector (Fleisher and Bensoussan, 2003). Small to medium firms such as AMS lack financial resources and seek markets with low barriers to entrance (Ehlers and Lazenby, 2004). According to Fleisher and Bensoussan (2003), entry barriers define the level of difficulty facing firms to enter an industry. The threat of new entrants is defined by the following entry barriers (Fleisher and Bensoussan, 2003; Hitt, Ireland and Hoskisson 2003):

- entry deterring prices where the cost of entry is higher than the marginal revenues;
- incumbent retaliation is influenced by a growth rate in contract maintenance;
- high costs associated with entrance into the maintenance industry;
- experience effects on the coal and ash plant maintenance service affords AMS to price itself lower than new entrants;
- other cost advantages of location affords AMS huge advantages;
- product differentiation is influenced by the customer loyalty and brand identity;
- distribution access;
- government regulations;
- and switching costs creates barriers to entrance if customers are unable to afford moving to other suppliers. (Bensoussan, 2003; Hitt, 2003).

#### 2.2.1.2.2 Bargaining power of suppliers

Companies which rely on powerful suppliers are faced with the threat of these suppliers influencing the costs, availability, and quality of input materials to firms in the maintenance services industry (Pearce and Robinson, 2003).

#### 2.2.1.2.3 Bargaining power of buyers

According to the theories of Fleisher and Bensoussan (2003) the bargaining power of buyers is high when AMS customers can force prices down by bargaining for higher quality and greater levels of service at the lowest possible price. Other factors that contribute to the high bargaining power of suppliers are the ability of AMS customers to trigger off competitive battles between rival firms (Hitt, Ireland and Hoskisson, 2003). High bargaining power of the buyers also exists when the buyers are able to purchase

large amounts of the industry's total output. The buyers are also powerful when a large concentration of sales originates from one customer (Fleisher and Bensoussan, 2003). If the switching costs are low and the products offered to the customers are undifferentiated, the buyer's power increases. If AMS provides services that have a unique set of attributes, it will be able to decrease buyer power (Porter, 1996). For AMS to renew the current contracts, the firm must provide a unique set of products to customers (Porter, 1996). The other factor that needs to be taken into consideration is the switching costs from AMS to other competitors (Fleisher and Bensoussan, 2003). If the switching costs are low, AMS has the problem of renegotiating its existing contracts.

#### 2.2.1.2.4 Threat of substitute products

The threat of substitute products occurs when existing and potential competitive products or services offer a more favourable combination of attributes at a lower cost (Fleisher and Bensoussan, 2003). The company relies on the large companies such as Eskom to outsource the industrial plant maintenance and operating and cleaning functions. Eskom is able to employ artisans, technicians and operators to perform the same function. The costs to the customer of AMS providing the maintenance services must be lower than the customers. Technological developments within the maintenance services industry can substitute the current products. Data will therefore be collected with respect to the latest developments within the maintenance services industry to determine the threats of substitute products.

#### 2.2.1.2.5 Intensity of rivalry among competitors

Firms differ in resources and capabilities and continue to differentiate themselves from competitors. Hitt, Ireland and Hoskisson (2003) have identified the following factors which affect the intensity of rivalries between firms: numerous and equally balanced competitors, slow industry growth, high fixed costs, lack of differentiation, high strategic stakes, and high exit barriers. This subcategory will determine the current situation faced by AMS with respect to the intensity of rivalry among competitors. AMS relies on the maintenance service to be contracted out by the power stations. The



intensity of rivalry among competitors in the maintenance services industry depends on the market growth and demand for contract maintenance (Johnson and Scholes, 1998). According to Fleisher and Bensoussan (2003), high growth reduces rivalry among competitors. This section describes the current rivalry among AMS competitors.

Porter has presented the above theories on the Five Forces that companies need to monitor. The purpose of the Five Forces process is to identify the profit potential of an industry to reveal the forces that harm profitability and profit potential (Hill and Jones, 2001). The purpose of the Five Forces theory is to protect competitive advantage by favourably influencing these forces and anticipate the necessary changes in the industry structure (Gadiesh and Gilbert, 1998). The studies performed on small to medium enterprises have indicated a lack of strategic planning and management (Van Eeden and Viviers and Venter, 2003). This therefore indicates that the small to medium enterprises such as AMS are static and cannot anticipate changes, as they are focused on the current day to day operations of the business (Van Eeden et al., 2003). The possible strategic gaps in this category will be determined by the high level barriers created by AMS. If the barriers to entrance are low, a strategic gap exists which will prevent AMS from renewing its existing contracts. Strategic gaps will also exist if AMS is unable to provide differentiated products, and the firm relies on a single customer. Strategic gaps exist if the services provided by AMS are more expensive than the customer utilising its own staff and resources to perform the tasks.

#### 2.2.1.3 Operating environment

According to Fleisher and Bensoussann (2003) the operating environment which is also termed the competitive or market environment is the level of the external environment of AMS that has an immediate and specific affect on the management of the firm. The components of the operating environment that AMS has to monitor are the customers, suppliers of labour, competitors and partners (Fleisher and Bensoussan, 2003). The operating environment can be controlled and influenced by AMS to some extent. Pearce and Robinson (2003) have identified the operating environment of AMS as being factors in the competitive situation that affect the firm's success in acquiring needed resources or in profitably marketing its goods and services. Possible strategic gaps will

exist in this category if AMS is unable to meet customer needs or to understand the characteristics and trends of the customer buyer behaviour. Possible strategic gaps will also exist if AMS is unable to identify current competitor strategies, capabilities and their future objectives. Since AMS relies on the skills and knowledge of the staff, the firm would require a continuous supply of suitably qualified artisans and technicians. Possible strategic gaps will also exist if AMS is unable to attract suitably qualified artisans and technicians by failing to meet the needed benefits required by the employees.

#### 2.2.1.3.1 Competitors

This aspect focuses on each company against which AMS directly competes. This segment determines the future objectives, current strategy, assumptions, capabilities, and responses of AMS competitors (Fleisher and Bensoussan, 2003).

#### 2.2.1.3.2 Customers

Customers are identified as those who buy or potentially purchase the AMS goods and services (Fleisher and Bensoussan, 2003). Developing customer profiles helps to determine the specific customer needs and trends.

#### 2.2.1.3.3 Labour

AMS access to personnel needed is affected by its reputation as an employer, local employment rates and availability of skilled labour (Hitt, Ireland and Hoskisson, 2003). Location also plays an important role in attracting suitably qualified and experienced skilled artisans and technicians.

#### 2.2.1.4 Resources

Measuring the strategic readiness of intangible assets is important to align the human capital to the AMS strategy (Kaplan and Norton, 2004). The new knowledge economy requires continuous learning created by the advancements in technology and globalisation (Kotze, 2003).

AMS relies on knowledge and skills of its artisans, technicians and supervisor's to provide the breakdown and preventative maintenance to the customers. Hamel and Prahalad (in Fourie and Mansfield, 2003) state that companies need to proactively change their internal environment to meet future changes of the external environment. Since AMS lacks the financial and capital equipment to compete, the firm must compete by adapting its internal resources proactively to the changing opportunities and threats in the external environment (Fourie and Mansfield, 2003). Possible strategic gaps will exist if AMS is unable to build its core competencies to meet the changing opportunities and overcome the threats. Other possible strategic gaps will also exist if the firm is unable to provide services and products that are valuable, rare, costly to imitate and non-substitutable (Hitt, Ireland and Hoskisson, 2003).

According to the theories of Hitt, Ireland and Hoskisson (2003), the intangible assets is a potent source of competitive advantage for AMS. Quin (in Fourie and Mansfield, 2003) has also indicated that small to medium sized companies such as AMS must adapt the internal resources to the changes in the external environment. The trends in the new economy have shown that AMS must compete with its intangible assets, especially with its human and organisational capital as suggested by Kaplan and Norton (2004).

#### 2.2.1.4.1 Tangible

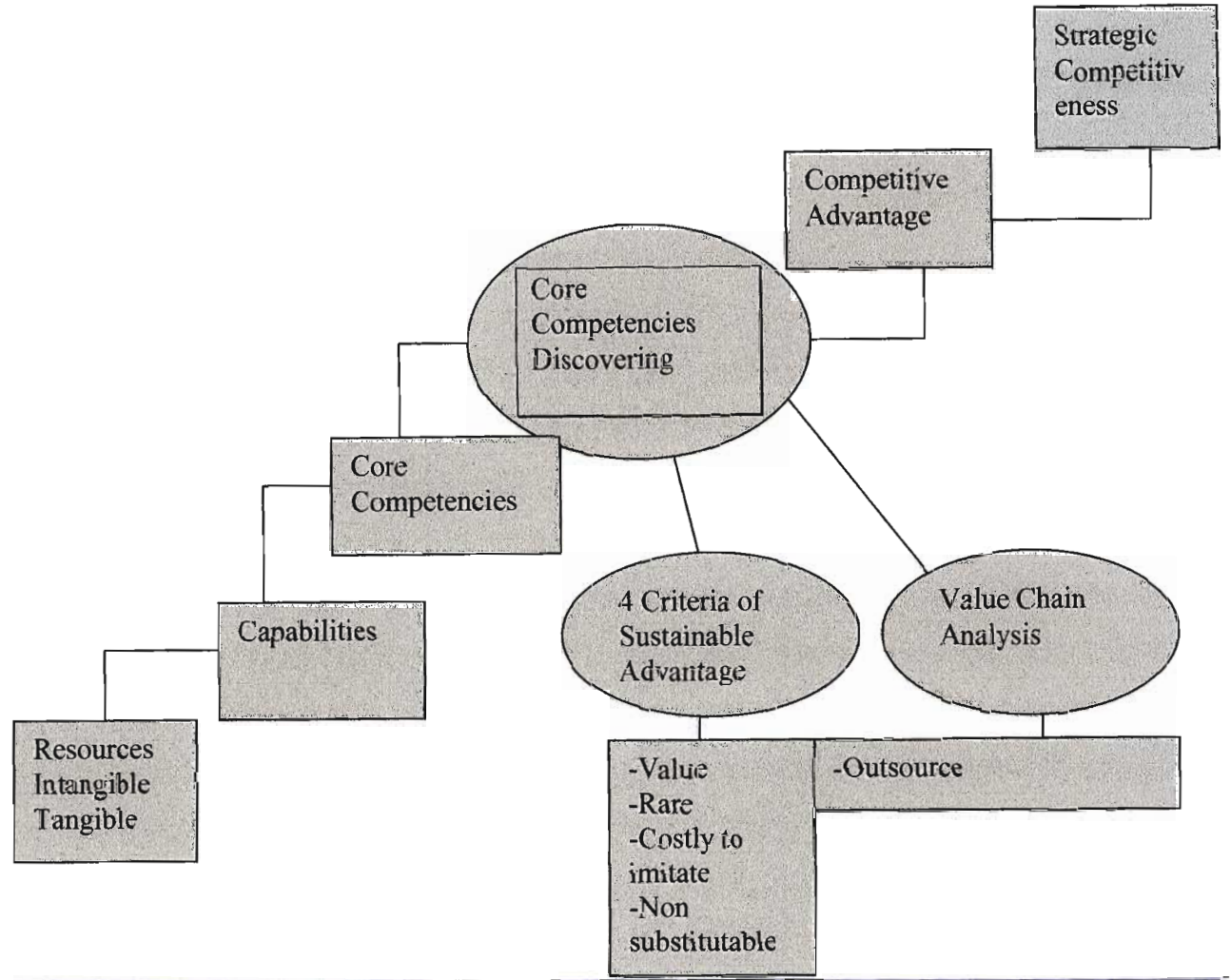
These are the physical factors of the maintenance, operating and cleaning services and assets of AMS that can be quantified: financial resources, business equipment, physical and technological which are all examples of tangible resources within the firm (Fleisher and Bensoussan, 2003).

#### 2.2.1.4.2 Intangible

The knowledge and skills of AMS employees to perform maintenance tasks are examples of intangible assets (Pearce and Robinson, 2003). Other examples of intangible assets are the trust built between the firms managers and employees, the capacity of the employees to perform the root cause analysis of maintenance failures, the managerial capabilities of the supervisors and directors to organise, lead, plan and control the firm's resources, the organisational routines set by the management team to ensure the availability of the plant and the firms reputation for its services and how it interacts with people such as employees, customers, and suppliers (Hitt, Ireland and Hoskisson, 2003).

The intangible assets are difficult for competitors to analyse and imitate (Hitt, Ireland and Hoskisson, 2003). Figure 2.1 below depicts the resources, capabilities and core competencies which lead to competitive advantages.

Figure 2.1: Components of Internal Analysis Leading to Competitive Advantage and Strategic competitiveness.



Source: Hitt, Ireland and Hoskisson, (2003:78)

The success of AMS in the global economy lies more in its intellectual capital and systems capabilities than in its physical assets (Hitt, Ireland and Hoskisson, 2003). According to Hitt, Ireland and Hoskisson (2003) AMS intangible resources are less visible and more difficult for competitors to understand, purchase, imitate, or substitute for. Therefore AMS needs to rely on its intangible assets as the foundation for their capabilities and core competencies. If AMS resources are unobservable (that is, intangible) to competitors, the company is able to achieve a sustainable competitive advantage (Hitt, Ireland and Hoskisson, 2003). The benefits of the firm competing with intangible assets are that its use can be leveraged to other products and services (Hitt, Ireland and Hoskisson, 2003). AMS can leverage its maintenance skills and knowledge

on the ash and coal conveying plants to other industries requiring maintenance on conveying plants. The specialised plant process knowledge of some of the directors and employees must be leveraged to other operating levels within the organisation. The larger the network of mechanical, electrical, control and instrumentation, and operating functional knowledge being leveraged to each functional level, the greater is the benefit to each party in preventing coal and ash plant failures. AMS employees must therefore be able to share knowledge among employees. If AMS mechanical artisans can share knowledge on how the mechanical systems operate, the control and instrumentation technicians can understand the purpose of their instruments in protecting the mechanical equipment from failure. The knowledge and skills on the mechanical, electrical and control and instrumentation disciplines improves the performance and effectiveness of the maintenance service offered.

The strategic value of the company's resources is indicated by the degree to which they contribute to the development of the capabilities, core competencies, and ultimately competitive advantage for the firm depicted in Figure 2.1. Since AMS relies on the human capital, the firm needs to manage knowledge and ensure that the knowledge is shared among employees (Kaplan and Norton, 2004). Possible strategic gaps will exist if AMS is unable to identify and build its intangible assets. Since AMS lacks tangible resources, the intangible resources become the major component in building the firm's capabilities and core competencies.

#### 2.2.1.5. Capabilities

The capabilities of AMS are its ability to deploy its integrated resources to achieve a desired end state of ensuring a continuous availability of the ash and coal conveying plants (Hitt, Ireland and Hoskisson, 2003). The firm's management team must therefore be able to plan, lead, organise and control its resources to achieve the goal of ensuring a one hundred percent availability of the plant maintained.

The glue binding the organisation together is the complex interactions among its tangible and intangible resources (Hitt, Ireland and Hoskisson, 2003). A possible strategic gap will occur if AMS is unable to develop, and exchange information and

knowledge through its human capital (Hitt, Ireland and Hoskisson, 2003). AMS requires the capabilities of ensuring plant availability and the safety and quality of the plant maintained. The foundation of many capabilities lies in the skills and knowledge of AMS employees, and, often, their mechanical, electrical, control and instrumentation and operating functional expertise. Possible strategic gaps will exist if the firm's employees are unable to prevent and repair plant failures. According to Hitt, Ireland and Hoskisson (2003) the value offered by companies are not derived from things, but from the knowledge, know - how, intellectual assets, competencies - all of which are embedded in people. Companies must therefore create an internal environment that allows people to fit their individual pieces of knowledge together, so that, collectively, employees possess as much knowledge as possible (Hitt, Ireland and Hoskisson, 2003). AMS must manage its specialist ash and coal conveying process knowledge and maintenance techniques that will support its efforts to create value for its customer. Core competencies of AMS will emerge over time through the organisational process of accumulating and learning how to deploy different resources and capabilities.

#### 2.2.1.6 Core competence

The core competencies of AMS are its ability to accumulate and learn how to deploy different resources and capabilities over a period of time (Hitt, Ireland and Hoskisson, 2003). According to Figure 2.1 the core competencies of AMS must be tested by the resource based view model for sustainability. The resource based view and value chain models are utilised to identify the core competencies of AMS. The core competencies provide AMS with a competitive advantage. The services provided by AMS must be rare, non - substitutable and valuable, thereby making it a unique mix of services (Hitt, Ireland and Hoskisson, 2003). Not all AMS resources and capabilities are strategic assets-that is, assets that have a competitive value and the potential to serve as a source of competitive advantage (Hitt, Ireland and Hoskisson, 2003). To be successful AMS must locate the external environment opportunities that can be exploited through its capabilities, while avoiding competition in areas of weakness. Therefore this means that firms should take action on their core competencies. The two tools which help the firm to identify and build its core competencies are the resource based view and the value chain (Hitt, Ireland and Hoskisson, 2003).

### **2.2.2 Determining the strategic choice**

According to the theories of Hill and Jones (2001), AMS is required to choose its strategies after an external and internal environmental analysis has been performed. The process of strategic choice requires AMS to identify a set of business and functional level strategies that will allow the firm to grow and survive in the new highly competitive economy (Hill and Jones, 2001; Kotze, 2003). The various levels of strategies will be explained in later sections. The strategies chosen by AMS must take into account competitive strategies and the maintenance services industry life cycle (Hitt, Ireland and Hoskisson, 2003; Robson, 1994). The industry life cycle affecting AMS will be discussed in the later sections. The various levels of AMS strategies identified in the case research will be tested for suitability (Johnson and Scholes, 1998). A SWOT analysis technique will also be utilised in the study to determine the strategic options available to AMS by analysing the external and internal environment for opportunities, threats, strengths and weaknesses (Hill and Jones, 2001). The options generated by the SWOT analysis will be tested for suitability by the industry life cycle, positioning and value chain analysis techniques (Robson, 1994; Johnson and Scholes, 1998). A possible strategic gap will exist if a misfit exists between the firm's strategies and the current situation. Possible strategic gaps will exist if AMS strategies do not fit the industry life cycle, and if the company is not uniquely positioned to provide rare, valuable and non - substitutable services.

#### **2.2.2.1 Functional level strategy**

According to Hill and Jones (2001), the functional level strategies of AMS are aimed at improving the effectiveness of the firm's breakdown maintenance, preventative maintenance, plant operating and cleaning services, human resource management and financial management.

The maintenance services offered by AMS comprise the three disciplines of mechanical, electrical and control and instrumentation. At these functional levels the AMS managers



must develop strategies which achieve superior efficiency, quality, innovation and customer responsiveness.

Possible strategic gaps will occur if AMS is unable to maintain the plant according to quality control plans required and if it provides a slow response operator's defects. Possible strategic gaps will also occur if the firm provides a reactive instead of a preventative approach. AMS has been maintaining the Ash and Coal conveying plant since 1998 and therefore the *learning affects* and *experience curve* would have contributed to the firm achieving superior efficiency (Hill and Jones, 2001). The labour costs must have decreased over the period of the firm's existence as the artisans, technicians, operators, semi-skilled workers and cleaners would have accumulated the necessary expertise in performing their functions. The experience curve has strategic significance, as it suggests that increasing AMS services volume and market share will also bring cost advantages over its competition (Hill and Jones, 2001). As AMS increases the accumulated volume of its output over time, it is able to achieve both economies of scale and learning effects. This ensures a fall in the labour costs of maintaining the plant with an increase in accumulated production. The plant requires fewer employees to perform their functions due to the experience and learning effects. Every value chain adopted by a company is used to execute functional tactics that support the businesses strategy and help accomplish the strategic objectives (Hill and Jones, 2001).

Since AMS is a maintenance service provider, it relies on the skills, expertise and experience of its employees to ensure that the coal and ash plant of Majuba power station is maintained to ensure plant availability. The productivity of AMS employee's is one of the key determinants of the firm's efficiency and cost structure. The higher the productivity of AMS employees, the lower the labour cost. According to Hill (2001) productivity improvement of AMS employees can be achieved by providing plant process and technical training on how to maintain and operate the plant, organisation of the artisans, semi - skilled workers and operators into self - managing teams, and directly linking pay to performance. AMS lacks the financial resources to employ highly skilled individuals. The highly skilled individuals are likely to perform tasks

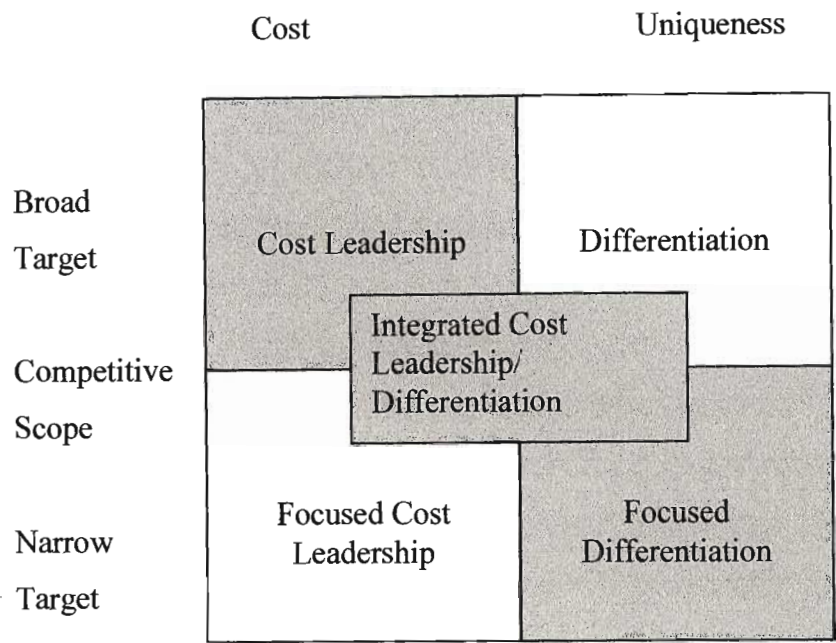
more quickly, efficiently and more effectively. Maintenance field requires artisans, technicians and semi - skills to perform fault finding surveys on technologically advanced equipment. If a new fault appears, the highly skilled artisan will be able to cope and adapt much faster. Training in AMS can improve the skill levels and improve plant availability due to efficiency gains. Self - managing teams within AMS will create flexibility, as each artisan, technician and semiskilled worker will learn all the maintenance tasks and rotate from job to job (Hill and Jones, 2001). This will motivate the AMS employees to make decisions. AMS must also link performance bonus to the team ability of ensuring the plant is maintained by adhering to the quality and safety standards, and a reduction in breakdowns and continuous availability of the plant being maintained (Hill and Jones, 2001). Possible strategic gaps will exist if AMS employees lack the skills and knowledge to perform the tasks and if there is a lack of training.

#### 2.2.2.2 Business level strategy

According to Hitt, Ireland and Hoskisson (2003), the business level strategy is the choice AMS makes when deciding how to compete in the maintenance services industry. Competition in AMS services product line is a question of the business level strategy. Pearce and Robinson (2003) indicate that AMS is required to acquire the information on the external environment opportunities and threats, as well as to identify and evaluate their internal resources, capabilities and core competencies. The external and internal environment information is required before any strategic choices are made (Robson, 1994). A possible strategic gap will occur if AMS has chosen its strategy without performing a strategic analysis of the external and internal environments (Robson, 1994). The firm must collect information on its remote, industry and operating environments respectively. In the remote environment AMS must determine the political, legal, social and economic factors which affect the firm. In the industry and operating environments, the firm must understand its customer's buyer behaviour and changes in the buyer's needs and also understand the competitive dynamics of its competition (Fleisher and Bensoussan, 2003). Studies on small to medium enterprises have shown that these firms lack strategic analysis (Van Eeden, Viviers and Venter, 2003). This could lead to AMS not achieving a sustainable competitive advantage because of being unable to exploit the core competencies.

Once the external and internal environments have been analysed the firm can select its business level strategies (Hill and Jones, 2001). In selecting a business level strategy AMS determines who its target market is, what needs the target customers have that the company will satisfy (determining which customer needs to satisfy) and how those needs will be satisfied (determining the resources, capabilities and core competencies necessary to satisfy customer needs) (Hitt, Ireland and Hoskisson, 2003). The case study in Chapter Three will identify AMS target market, the needs of the customer it satisfies and how it satisfies those needs. AMS must be able to use their core competencies (the how) to satisfy the needs (the what) of the target customer groups (the who) the firm has chosen to serve. According to the theories of Hitt, Ireland and Hoskisson (2003) AMS business level strategies are intended to create differences between the firm's positions relative to those of its rivals. To position itself, AMS must decide whether it intends to perform activities differently or to perform different activities as compared to its rivals (Porter, 1996). The business level strategy chosen by AMS must be able to create unique value to Majuba power station by performing the value chain's primary and support activities that contribute to creating customer value (Hitt, Ireland and Hoskisson, 2003). AMS customers are the foundation for the firm's business level strategy. The business level strategy chosen by AMS must create customer value (Hitt, Ireland and Hoskisson, 2003). A possible strategic gap will occur if AMS is unable to create customer value through its value chain primary and support activities. The five types of business level strategies that AMS can pursue are: cost leadership, differentiation, focused cost leadership, focused differentiation, and integrated cost leadership and differentiation which are depicted in Figure 2.2.

Figure 2.2: Five Business Level Strategies



Source: Hitt, Ireland and Hoskisson (2003:119)

Figure 2.2 above indicates the various business level strategies. After determining the needs of the customers, the firm is required to select a business level strategy which satisfies its customers. The cost leadership strategy is the integrated set of actions of AMS to provide services to the customers with the features which are acceptable and at the lowest possible costs in comparison to competitors. The differentiated strategy is for AMS to target customers so that value is added in the way the company’s maintenance services are differentiated (Hitt, Ireland and Hoskisson, 2003). A successful differentiation strategy of AMS is to provide the maintenance services of perceived higher value to Majuba power station at a differentiated cost below the value premium. The maintenance service is different in ways which are important to the customers. A focus strategy is when firms utilise their core competencies to serve a particular industry segment (Hitt, Ireland and Hoskisson, 2003). Examples of market segments are particular buyer groups such as large material handling industries, different segments of a product line such as maintenance services for coal and ash conveying plants, and different geographic markets such as providing maintenance services to the Mpumalanga region (Hitt, Ireland and Hoskisson, 2003).

The 21<sup>st</sup> century business environment has shown that companies can no longer compete on cost leadership and differentiation only but must combine the two to some extent (Kotze, 2003). The drivers for the combinations of strategies are customers seeking high quality goods and services at the lowest possible price. Porter's theory on the generic business level strategy is being questioned by the continuous changes of the external environments factors (Kruger, 2003; Kotze, 2003). AMS must therefore take heed to these trends as it needs to create a competitive advantage and renewal of its current contracts. AMS must pursue an integrated cost leadership and differentiation business level strategy. It must provide a maintenance service that is low cost and of a high quality by ensuring no rework on maintenance jobs and following a proactive approach of preventing plant failures.

Cost leadership occurs when AMS is able to provide a service at lower prices than competitors (Hitt, Ireland and Hoskisson, 2003). Differentiation will occur when AMS can provide a combination of services which other competitors cannot match (Hitt, Ireland and Hoskisson, 2003). The firm has focused on providing a maintenance service on the Majuba power station. AMS has a single dominant maintenance service which is offered to Majuba power station (Pearce and Robinson, 2003).

The strategic analysis and choice is the phase of the strategic management process when AMS directors choose a business strategy which allows the firm to maintain and create a sustainable competitive advantage (Hill and Jones, 2001; Robson, 1994). The grand strategy selection matrix and model of grand strategy clusters depicted in Figure 2.7 and Figure 2.8 respectively are useful tools in assisting single or dominant product businesses such as AMS to evaluate and narrow grand strategy choices (Pearce and Robinson, 2003). These tools are utilised to determine the gaps in strategic choices made by AMS directors and provide recommendations concerning the possible strategic gaps identified. These models can be utilised after an analysis of the current strengths and weaknesses of the firm is performed, determining the current growth rate of the contract maintenance services and the competitive position of AMS in the maintenance services industry (Pearce and Robinson, 2003). Grand strategies provide the basic direction for strategic actions of AMS (Pearce and Robinson, 2003). They are therefore

the coordinated and sustained efforts of AMS at achieving the long - term objectives. Grand strategies also indicate the time period over which long - term objectives are to be achieved (Pearce and Robinson, 2003). If AMS wants to renew its current contracts the firm would be required to follow a turnaround strategy if it has enormous production in – efficiencies (Pearce and Robinson, 2003). If AMS wants to achieve growth and a sustainable competitive advantage it will be required to follow a concentrated growth strategy, market development, and product development, horizontal and vertical integration (Pearce and Robinson, 2003). These strategies are all dependent on the current situation faced by AMS with respect to the customers, competitors, governmental policies governing business and economic conditions experienced by South Africa. The grand strategies are explained below (Pearce and Robinson, 2003).

- Concentrated Growth is the strategy of a firm to direct the resources to achieve the profitable growth of a single product, in a single market, and with a single dominant technology. This approach is sometimes referred to as market penetration strategy.
- Market Development is second to concentrated growth as the least costly and least risky from other grand strategies. The market development strategy occurs when a firm markets its existing products to new customers requiring similar products.
- Product Development involves a considerable number of modifications to existing products or creating new related products that can be marketed to current customers. It is utilized to extend the life cycle of existing products.
- Innovation is a strategy aimed at creating a new product life cycle and therefore makes existing products obsolete.
- Horizontal Integration is a strategy that involves the purchase of a similar competitive company.
- Vertical Integration occurs when a firm acquires the company's that provide it with inputs and raw materials (backward integration). Forward integration occurs when the firm acquires its customer for its outputs such as warehouses or finished goods.
- Concentric Diversification occurs when the firm acquires the businesses that are related to the acquiring firm in terms of technology, markets, and products.

- Turnaround: this strategy occurs when firms makes an effort over a period of time to fortify its distinctive competencies. The reason a firm chooses a turnaround strategy is when it experiences economic recession, production inefficiencies, and innovative breakthroughs by competitors.
- Divestiture: this strategy involves the sale of a firm or components of the firm.

### **2.2.3 Determining the strategy implementation**

According to Kaplan and Norton (2001) companies have placed emphasis on the formulation of strategy and not on the implementation process. If the strategies of AMS are not implemented properly it will provide no value to the customer, and the sustainability of its current contracts (Kaplan and Norton, 2001). With the fast changing new economy, AMS needs to respond quickly to these changes by adjusting not just the strategy but also the implementation process. The structure, culture, leadership, policies and procedures are also required to be changed to ensure the firm moves in the correct direction (Hill and Jones, 2001).

To ensure success, strategies must be translated into carefully implemented action (Pearce and Robinson, 2003). The firm's strategy must be translated into guidelines for the daily plant maintenance activities for the managers and employees through the implementation process (Pearce and Robinson, 2003). The strategy AMS chooses must be reflected in the activities within the firm and the values and beliefs (Pearce and Robinson, 2003). In implementing the strategy, the managers of AMS must direct and control actions and outcomes and adjust to changes in customer and legal requirements (Hill and Jones, 2001). A possible strategic gap will occur if AMS has not implemented the strategies that direct and control actions according to the strategies chosen. Organisational action is successfully initiated by the creation of clear short - term objectives and action plans, development of specific functional tactics that create competitive advantage, empowerment of operating personnel through proper policies to guide decisions, and the implementation of effective reward systems (Pearce and Robinson, 2003).

### 2.2.3.1 Structure

AMS must select a combination of organisational structure and control systems that lets the firm pursue its strategy most effectively (Hill and Jones, 2001). This therefore ensures a sustainable competitive advantage (Hill and Jones, 2001). The role of organisational structure and control is to coordinate the activities of the supervisors, artisans, semi - skilled workers, operators and cleaners so that they work together most effectively to implement the firm's strategy of providing services to prevent plant failures, and to improve the quality and safety of the services offered which consequently increases the competitive advantage (Hill and Jones, 2001)

The employees must also be motivated with the necessary incentives to attain superior efficiency, quality, innovation and customer responsiveness (Hill and Jones, 2001). Organisational structure and control shape the way AMS employees behave and normally determine how they will act in the organisational setting. Possible strategic gaps will occur if AMS is unable to implement the strategies through the structure, controls, leadership and culture to ensure a competitive advantage. Research has shown that small to medium enterprises lack the capabilities of coordinating activities of their employees (Van Eeden, Viviers and Venter, 2003).

AMS strategy must be implemented through the organisational structure (Robbins and Decenzo, 2001). The structure of the firm must be utilised to assign the employees tasks and connect the activities of different people and the maintenance functions of mechanical, electrical and control and instrumentation, plant operating, and plant cleaning functions. This contributes to value creation activities within AMS (Hill and Jones 2001).

In the competitive environment of the 21<sup>st</sup> century it is important for AMS organisational functions to develop a distinctive competency in a value creation activity in order to increase efficiency, quality, and customer responsiveness to plant failures (Hill and Jones, 2001). Each mechanical, electrical, control and instrumentation maintenance, plant operating and plant cleaning function requires a structure designed to allow it to develop its skills and become more specialised and productive. In order for



AMS to develop a structure that adds value and a sustainable competitive advantage, the firm must group tasks into functions, and group functions into business units or divisions, to create distinctive competencies and pursue the particular strategies (Hill and Jones, 2001). AMS managers must also be able to allocate authority and responsibilities (Robbins and Decenzo, 2001). Due to the current customer requirements in the new economy, AMS must implement flat structures, and must also create minimum chain of command (Kotze, 2003; Robbins and Decenzo, 2001). This will help the firm to be adaptable to growth as the various employees are empowered to perform their daily tasks and functions. As the firm grows and adds more products and customers to its current portfolio, AMS will be required to increase the level of coordination and integration between its various maintenance, operating and cleaning functions (Hill and Jones, 2004).

#### 2.2.3.1.1 Grouping tasks, functions and divisions

An organisation tasks are a function of its strategy, a dominant view is that structure follows strategy and companies choose their structure to match the organisational strategy (Hill and Jones, 2004; Robbins and Decenzo, 2001).

Some of the maintenance tasks of the firm's artisans are to perform preventative, breakdown, and proactive maintenance. These tasks are a function of the firm's strategy to prevent plant failures and ensure the continuous availability of the ash and coal plant. According to Chandler (in Hill and Jones, 2004) organisational structure follows the range and variety of tasks that an organisation has chosen to pursue and structures change as strategies change. A possible strategic gap will exist if AMS has not developed its structure to follow the variety of tasks the firm has chosen to pursue. A function is defined as a collection of people who work together and normally perform the same type of tasks or hold similar positions in the company (Hill and Jones, 2004). The functions of AMS are broken up into mechanical, electrical, control and instrumentation maintenance, operating, cleaning, administration, safety, quality and financial management. The degree of complexity and the number of transfers among the firm's employees, functions and subunits to provide the maintenance service have increased due to the increase in services offered to Majuba power station. AMS has

grown from five to 63 three personnel, thereby increasing the scope of tasks. AMS must be able to modify its structure to reduce the complexities (Hill and Jones, 2004). If the company is unsuccessful in modifying the structure there will be communication and information distortion problems among the various functions (Hill and Jones 2004). The management team of AMS must be able to group tasks into functions and, when necessary, functions into business units or divisions to reduce transactional costs. A division is a group of functions created by AMS to allow the firm to provide a better maintenance service to the Majuba power station (Hill and Jones, 2004).

#### 2.2.3.1.2 Allocating authority and responsibility

As mentioned in the previous section, the growth of companies has lead to an increase in the amount of transfers among employees. The management team of AMS must therefore develop a clear hierarchy of authority to overcome the problem of communication and transfers between employees (Hill and Jones, 2004; Robbins and Decenzo, 2001). A hierarchy of authority is an organization's chain of command, which is the relative authority each manager within AMS possesses, and extends from the directors at the top down through the middle managers and to the non - managerial employees who actually provide the maintenance services (Robbins and Decenzo, 2001). Span of control is the number of employees who report to a manager (Robbins and Decenzo, 2001). When AMS managers know their authority and responsibility, distortion problems will be kept to a minimum (Hill and Jones, 2004). This helps reduce conflicts within the various functions and provides managers with a sense of purpose and direction. According to Robbins and Decenzo (2001), AMS managers must allocate responsibility when delegating authority. This indicates that when employees are given rights, they also assume a corresponding obligation to perform. A possible strategic gap will occur if AMS managers are unable to allocate authority with responsibilities. This will lead to abuse of the various maintenance tasks and functions. None of the AMS employees, managers and directors should also be responsible for something over which they do not have authority.

#### 2.2.3.1.3 Tall and flat structures

AMS management team must choose the number of hierarchical levels on the very basis of their strategy and the functional tasks necessary to achieve it (Hill and Jones, 2004). The firm has grown in size contributing to the lengthening of the hierarchy of authority, thereby making a taller structure. The company size is directly related to the number of levels (Hill and Jones, 2004). A flat organisation normally has fewer levels due to the smaller size. In today's competitive environment, taller structures create a flexibility problem where organisations are less flexible and managers are slow to respond to changing environments (Kotze, 2003). Communication problems result from tall structures (Hill and Jones, 2004). The middle managers of AMS must be held responsible for their decisions so that they will take more time to ensure that they make the correct decisions. Sometimes middle managers of the firm may avoid decision - making thus making top managers decide what decisions to make. A possible strategic gap will occur if the middle managers are not empowered to make decisions.

#### 2.2.3.1.4 Minimum chain of command

AMS must choose a hierarchy with the fewest levels of authority to ensure effective and efficient use of its resources. A tall structure in AMS would decrease motivation and coordination between employees. AMS management team must implement a decentralised chain of command with the fewest levels of authority to ensure effective and efficient use of its resources (Hill and Jones, 2004).

#### 2.2.3.1.5 Centralization or decentralization

Centralised decision - making in AMS occurs when managers at the upper level retain the authority to make important decisions (Hill and Jones, 2004). Authority is decentralised in AMS when it is delegated to divisions, functions, and employees at the lower levels within the company. Decentralised authority avoids communication and coordination problems which arise when information is not sent on a continuous basis to top management for decisions to be made (Hill and Jones, 2004). If AMS follows a centralised decision – making process the firm will end up with enormous coordination problems.

A decentralised decision – making process will be advantageous to AMS as it will ensure the middle management team is empowered to make decisions and the top management team can concentrate on longer term strategic decisions. Delegation of operational decision - making responsibilities to middle and first level managers by the strategic manager reduces information overload (Hill and Jones, 2004). This enables strategic managers to spend more time developing competitive strategies. The motivation and accountability of bottom layer managers increases when they become responsible for adapting strategy to suit local conditions (Hill and Jones, 2004). Fewer managers are needed to watch over lower level managers when given the authority to make decisions. AMS would require both centralised and decentralised decision - making as it is a small company. The centralised decision - making would include longer term strategic decisions, whilst the shorter term decision making would be performed by the middle management to ensure the functional strategic objectives are met (Hill and Jones, 2004). Centralisation allows easier coordination of the organisational factors needed to pursue company's strategy (Robbins and Decenzo, 2001). Since AMS is a small firm certain decisions must still be made by the directors and owners to ensure the strategies are implemented (Van Eeden, Viviers and Venter, 2003).

#### 2.2.3.1.6 Integration mechanisms

AMS must make use of integrating mechanisms to optimise information distortion problems that could occur among the various departments when working together to achieve the purpose to ensure the continuous availability of the ash and coal plan (Hill and Jones, 2004). In order to solve the possible distortion problems, AMS managers from the various functions must have direct contact with each other to solve the problems (Hill and Jones, 2004). A sign of a poorly performing organisational structure within AMS is when operational problems are sent to top management to solve (Hill and Jones, 2004). To provide a solution to such problems AMS managers must increase coordination among functions and division.

#### 2.2.3.2 Controls

Controls is the process by which AMS managers monitor the ongoing activities of the organisation and its members to evaluate whether the preventative and breakdown maintenance, plant operating and cleaning activities are being performed according to customer requirements and the necessary corrective actions are taken if the activities are not performed to the standards expected by Majuba power station (Hill and Jones 2001). Chapter Three includes research data collected from AMS with respect to the controls currently in place to ensure that the firm's strategic objectives are being achieved. Customer requirements are safety, quality; reduced breakdowns on the plant and continuous availability of the ash and coal plant. The strategic managers of AMS create strategic control systems which allow them to monitor and evaluate whether the structure and strategy are working as set out, how it could be improved, and how it should be changed if not working (Hill and Jones, 2004). Strategic controls must also help the company create the incentives to keep employees motivated and focused on the important plant breakdown problems confronting organisations in the future, allowing the company to work together finding solutions enabling the firm to perform better over time (Hill and Jones, 2004). The firm would require strategic controls to ensure that the strategies are in line with the current and future trends of the customers. The long - term and short - term objectives would be utilised as a control system to determine whether the firm has been successful in achieving its strategic objectives (Pearce and Robinson, 2003). Corrective action would be taken if the firm has been unsuccessful in achieving its objectives. The customer is the focus of the control system, as the main purpose is to ensure that the customer is consistently satisfied (Kotze, 2003). Controls must ensure that the preventative maintenance is effective.

According to the theories of Hitt, Ireland and Hoskisson (2003), strategic controls are intended to verify that the firm is using appropriate strategies for the conditions in the external environment and to achieve a competitive advantage. AMS must therefore monitor the external environment to determine the threats and opportunities faced by the company.

#### 2.2.3.3 Culture

In order for organisations to ensure successful implementation of the strategy, managers need to manage the organisational culture (Hill and Jones, 2001). Organisational culture refers to the dominant beliefs, values and norms of the members of the group that form the organisation (Hill and Jones, 2004; Struwig and Smith, 2002). Gibson, Ivancevich and Dornelly (in Struwig and Smith, 2002) concur by describing it as the personality or feel of the organisation, explaining how organisations and people behave in different circumstances. Organisational values are the beliefs and ideas about what kinds of goals members of an organisation should pursue (Struwig and Smith, 2002). Values are also about the appropriate kinds or standards of behaviour organisational members should use to achieve the goals (Struwig and Smith, 2002). The organisational values, the norms, guidelines or expectations that prescribe appropriate kinds of behaviour by employees in particular situations, controls the behaviour of organizational members toward one another (Struwig and Smith, 2002). With AMS a cautious approach needs to be adopted for plant safety, by ensuring all necessary procedures are followed to ensure a safe working environment at all times.

Organizational socialisation is normally the term used to describe the ways in which people learn the organisational culture (Struwig and Smith, 2002). Through the perspective of socialisation, employees learn the norms and values of the culture so that they become members of the organization (Struwig and Smith). Control through culture is very powerful as it influences the individual over time (Struwig and Smith, 2002). The employee adopts the organisational culture without thinking about it. The values and norms of an organisation's culture are transmitted to employees through the stories, myths, language that other people in the organisation use (Struwig and Smith, 2002). The members of the organization members also develop attitudes towards certain working conditions such as contracting (Struwig and Smith, 2002).

#### 2.2.3.4 Leadership

According to the theories of Hitt, Ireland and Hoskisson (2003) strategic leadership is the ability to empower others to create strategic changes when needed and also to anticipate, envision changes and lastly to maintain flexibility. Strategic leadership

involves managing through others and also managing the entire enterprise (Hitt, Ireland, Hoskisson, 2003). A good strategy cannot be formulated and implemented to achieve a competitive advantage without effective strategic leadership. According to Rothschild (1996) three factors are key to strategic leadership, the first being that the leader and the life cycle phase must be matched, the second being that each strategic differentiator requires a different leader and implementation team, and the last that just as strategies must change so must leadership. The leadership style by top management of AMS affects the organisational culture (Hill and Jones, 2004).

## ***2.3 Evaluating the strategic analysis, choice and implementation***

### **2.3.1 Evaluating the strategic analysis**

This section indicates the analysis techniques utilised to analyse the data represented in Chapter Three.

#### **2.3.1.1 STEEP Analysis (Bensoussan, 2003)**

The STEEP analysis technique is made up of five steps which are utilised to analyse the current remote macro-environmental trends facing Amalahle Maintenance Services. Firstly, step one requires an understanding of the social, technological, economic, environmental and political segments of the STEEP analysis facing AMS. The main aim within the step is to determine which trends have a negative impact or positive affect on the firm. Step two requires an understanding of the interrelationships between the various trends identified in step one. Step three relates the trends to the various issues. The most critical trends are the issues faced by AMS. Step four requires a forecasting of the future direction of the issues. The last step of the STEEP analysis technique is to derive implications of strategic issues identified and its effects on AMS strategies, the contract maintenance industry, and of competitors strategies.

### 2.3.1.2 Functional capability and resource analysis (Fleisher and Bensoussan, 2003)

According to Fleisher and Bensoussan (2003) the functional capability and resource analysis views Amalahle Maintenance services as a collection of tangible and intangible assets and core capabilities. The model determines whether the internal resources are valuable in driving the competitive advantage of AMS. The functional capability and resource analysis is made up of the steps discussed below.

- *Determine the firm's critical success factor:* these are the few factors of AMS to secure and sustain a competitive advantage. The critical success factors of AMS are the special skill and knowledge of AMS employees in maintaining the coal and ash conveying plant, to satisfy the requirements of the Majuba power station. There are four major sources of critical success factors for AMS: changes in macro environmental characteristics may affect AMS critical success factors; changes in maintenance industry life cycles would also affect the industry life cycle; rival competitive positions affects AMS critical success factors; and the firm must ensure that the critical success factors identified must be executed properly.
- *Identify the firm's resources:* this category requires the identification of the tangible resources, intangible resources, capabilities and core competencies of AMS.
- *Evaluate the firm's resources:* this category requires that AMS resources be run through the VRIO framework to test for value, rarity, inimitability, and the organization question.
- *Identify the gaps between the firm's resources and critical success factors:* this category compares the evaluated resources of AMS to the critical success factors of the company. This section will determine the possible strategic gaps between the critical success factors and AMS current competitive resources.



- *Diagnose the current strategy*: this section provides information on the possible strategic gaps on the AMS current strategy by identifying the strategic gaps between the firm's resources, strategy, and the competitive environment through the VRIO framework.
- *Formulate rational future strategies*: this category determines the future strategies which AMS is required to pursue.

#### 2.3.1.3 Competitor analysis

This analysis technique has been adapted from the theories presented by Hitt, Ireland and Hoskisson (2003). The analysis technique identifies the current competitors of AMS by determining the market commonality, resource capability, and the future competitors of the firm and lastly the future goals of the competitors. The market commonality is concerned with the number of industries AMS and the competitors are jointly involved in and the degree of importance of industry markets to each firm. The resource capability will enable AMS to determine the number of large and small companies with which it competes. The future competitors are firms with which AMS will compete with, due to technological or customer changes. The future goals of each competitor will assist in determining the competitive dynamics of the contracted maintenance services industry.

#### 2.3.1.4 Industry analysis (Fleisher and Bensoussan, 2003)

This analysis technique analyses the data represented in Chapter Three industry analysis segments. The segments include the threat of new entrant, bargaining power of buyers, bargaining power of suppliers, the threat of substitute products and the intensity of rivalry among competitors. These segments are explained in the preceding sections of the industry environment. The industry analysis is performed by rating the five forces of the maintenance services industry as follows, 5 = strong and 1 = weak. This therefore indicates the profit potential of the contract maintenance industry.

#### 2.3.1.5 Stakeholder analysis (Fleisher and Bensoussan, 2003)

This technique identifies the people or groups who influence the profitability and survival of AMS. The stakeholder analysis technique is made up of the following techniques: step one identifies the firm's stakeholders according to their interest, demands, and their impact to AMS and also according to the stakeholder's strengths and weaknesses. The next step is to determine the stakes of the various stakeholders identified in step one. Step three identifies the opportunities and challenges the stakeholders present to AMS and its competitors. The fourth step is to identify the strategies the directors and management team of AMS should adopt in response to the actions of the stakeholders.

#### 2.3.1.6 SWOT Analysis (Fleisher and Bensoussan, 2003)

The analyses technique is called SWOT which is a means of determining the internal strengths and weaknesses of AMS, and the external environment opportunities and threats facing a firm. The first step in applying the technique by Bensoussan (2002) is to list and evaluate the current and possible future strengths, weaknesses, opportunities and threats of AMS.

- **Strengths:** this refers to a resource advantage relative to AMS competitors and the customer requirements the firm serves (Pearce and Robinson, 2003). According Fleisher and Bensoussan (2003) strengths are the resources or capabilities that AMS has acquired which are utilised to achieve the performance objectives of preventing ash and coal plant failures.
- **Weaknesses:** refers to the limitation within Amalahle Maintenance Services which prevent the firm from achieving its objective. It is also defined as the tasks the company performs poorly.
- **Opportunities:** this refers to a major favourable situation in the maintenance services industry. The South African government has introduced black economic empowerment policies which favour AMS since it is black empowered.

- **Threats:** these are the impediments to AMS's current and future position. The entrance of new competitors into the contracted maintenance industry, slow market growth for contract maintenance, technological changes to maintenance techniques, new safety regulations required by customers, increase in buyer power are all threats to the company.

The next step would be to identify AMS's strategic fit between the internal capabilities and external environment. The degree of fit or misfit would indicate the possible strategic gaps in achieving a sustainable competitive advantage. The degree of fit or misfit for AMS is indicated in Figure 2.3: The TOWS Matrix.

Figure 2.3: The TOWS Matrix

<div> <div>Internal</div> <div>External</div> </div>	Strengths	Weaknesses
	A list of the internal strength of AMS	A list of the internal weaknesses of AMS.
<b>Opportunities</b> A list of the external opportunities of AMS	<b>Quadrant 1:</b> Possible Strategies for opportunities and strengths	<b>Quadrant 2:</b> Possible <b>strategies</b> for opportunities and weaknesses
<b>Threats</b> A list of external threats facing AMS.	<b>Quadrant 3:</b> Possible Strategies for Threats and strengths	<b>Quadrant 4:</b> Possible strategies for threats and weaknesses

Source: Fleisher and Bensoussan (2003).

Figure 2.3 identifies the strategic issues and develops the strategic options and strategies available to AMS by matching the internal strengths with the external opportunities in quadrant 1, the internal weaknesses relative to the external threats in quadrant three, and the internal weaknesses relative to the external threats in quadrant 4. The SWOT analyses tool is utilised as a prognostic tool to evaluate AMS current and alternative strategies. Quadrant 1 is the ideal position for AMS as it indicates the tightest fit between the external and internal environment. The strategy for AMS is to find a unique

combination of resources to extend its current competitive advantage at the Majuba power station. Quadrant 2 will require AMS to turn some of its weaknesses into strengths to exploit the external opportunities. Quadrant three would require AMS to transform its current and future threats into opportunities by repositioning the firm's resources. Quadrant four is the worst position for AMS. If AMS is positioned in quadrant four, the firm will be required to divest and focus on more promising opportunities in other quadrants.

### **2.3.2 Evaluation of the strategic choice and strategic options**

This section indicates the analysis techniques for analysing the company's strategic options and strategic choices.

#### **2.3.2.1 SWOT Interaction matrix (Fleisher and Bensoussan, 2003)**

The interaction matrix is utilised when there are large numbers of strategic issues. The interaction matrix is also utilised to evaluate the strategic options across the quadrant range of AMS. Each issue indicating a strong match between the strengths and opportunities of AMS is assigned a +, whereas a weak match is assigned an "0"

#### **2.3.2.2 Industry Life Cycle (Johnson and Scholes, 1998)**

It is important for AMS to determine the industry life cycle of the contract maintenance industry in order to ensure a strategic fit. A possible strategic gap would occur if the strategies chosen by the company do not fit the industry life cycle. The strategic options are also tested against the industry life cycle model to determine the most appropriate way forward for the company.

Figure 2.4: The Life Cycle Matrix-Stages of Industry Maturity

	Embryonic	Growth	Mature	Ageing
Dominant	Fast Grow Start Up	Fast Grow Attain Cost Leadership Renew Defend position	Defend Position Attain Cost Leadership Renew Fast Grow	Defend Position Focus Renew Grow with Industry
Strong	Start Up Differentiate Fast Grow	Fast Grow Catch Up Attain Cost Leadership Differentiate	Attain cost leadership Renew, focus Differentiate Grow with industry	Find niche Hold niche Hang in Grow with industry Harvest
Favourable	Start Up Differentiate Focus Fast Grow	Differentiate, focus, Catch Up Grow with industry	Harvest, hang in, find niche, hold niche, renew, turnaround, differentiate, focus, grow with industry	Retrench Turnaround
Tenable	Start Up Grow with industry Focus	Harvest, catch up, hold niche, hang in, find niche, turnaround, focus, grow with industry	Harvest Turnaround Find niche Retrench	Divest Retrench
Weak	Find niche Catch up Grow with industry	Turnaround Retrench	Withdraw Divest	Withdraw

Source: Johnson and Scholes, (1998).

The purpose of the matrix is to determine the appropriateness of current strategies of AMS and its strategic options in relation with the firm's current competitive position and the stages of the contracted maintenance services industry. The study will determine the current position of AMS on the matrix and recommend which strategies are suitable for the firm to pursue.

2.3.2.3 Positioning

AMS is required to position itself correctly in the market to ensure a sustainable competitive advantage (Porter, 1996). The strategies chosen by the firm must ensure value is added to the customers and there is cost reduction depending on the generic strategies chosen by the company (Hitt, Ireland and Hoskisson, 2003). The strategies chosen by the company must also ensure that resources are difficult to imitate, thereby ensuring sustainability (Hitt, Ireland and Hoskisson, 2003).

Figure 2.5: Positioning

A	B1	B2	C			
Resources and competences underpinning AMS strategy	Which of these resources/competences are likely to contribute to:		Which will be sustainable/difficult to imitate			
	Cost Reduction	Added Value in terms of needs perceived by customers	Value	Rare	Complex	Tacit

Source: Johnson and K. Scholes, (1998).

The positioning model above assists in analyzing the strategic options and the strategic choices. The strategic options together with the current strategies are tested to determine if they lead to a cost reduction, add value in terms of the needs perceived by the customer, and if the resources and competences of the strategies are sustainable and difficult to imitate (Johnson and Scholes, 1998).

2.3.2.4 Value chain

The value chain describes the activities within and around AMS (Hitt, Ireland and Hoskisson, 2003). In order for AMS to achieve a sustainable success, the value delivery system to customers of providing the maintenance services must continue to add value (Johnson and Scholes, 1998). The strategies are therefore tested to determine the extent to which, the strategies reconfigure the value chain in ways which value for money and the competitive position of the company are maintained and enhanced (Johnson and Scholes, 1998).

Figure 2.6: Value chain

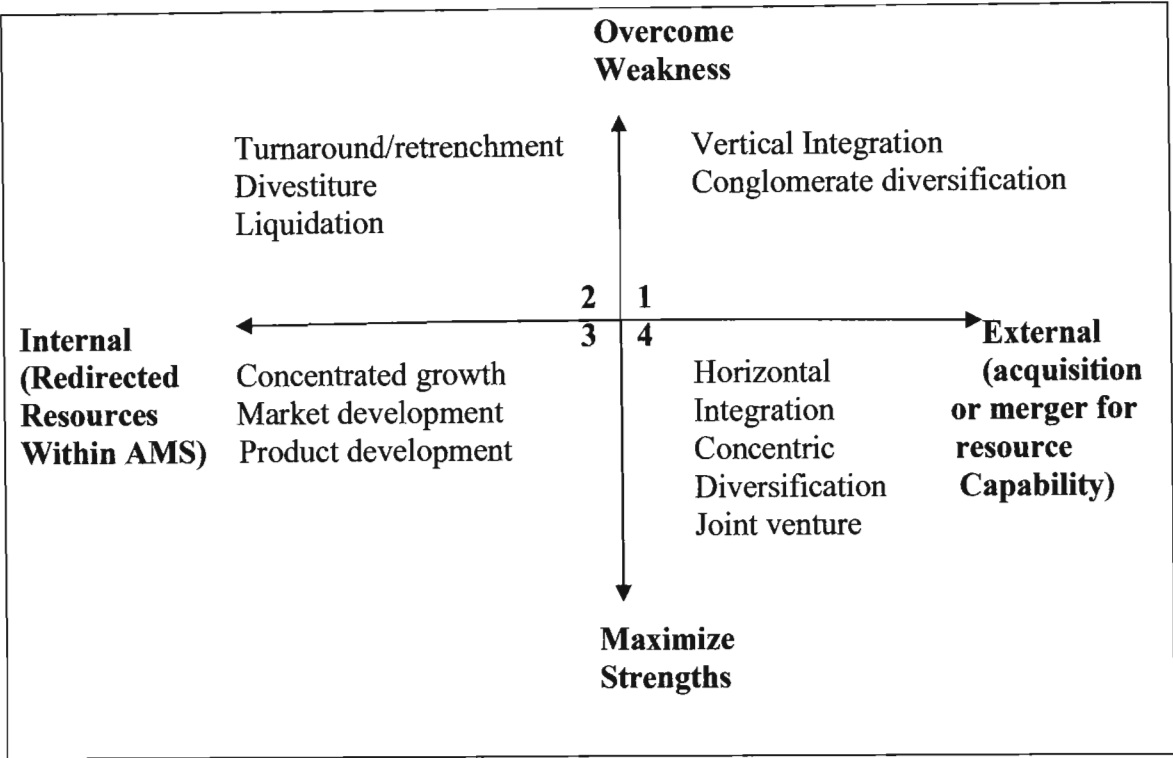
Degree of Synergy with present activities	Different strategies
Profit potential	High, Medium or Low
Create customer value by reducing maintenance costs, and increase convenience, and speed of response	High, Medium or Low
Increase availability of plant maintained	High, Medium or Low
Reliability, quality and safety	High, Medium or Low
Barriers to other firms	High, Medium or Low

Source: Johnson and Scholes, (1998)

The value chain model depicted above assists in determining the amount of synergies of AMS current internal operations and the strategic options (Johnson and Scholes, 1998). According to Johnson (1998) synergy is concerned with determining the amount of benefit or value for money created from reconfiguring the value chain.

2.3.2.5 Grand strategy selection matrix

Figure 2.7: Grand strategy selection matrix



Source: Pearce and Robinson, (2003:208).

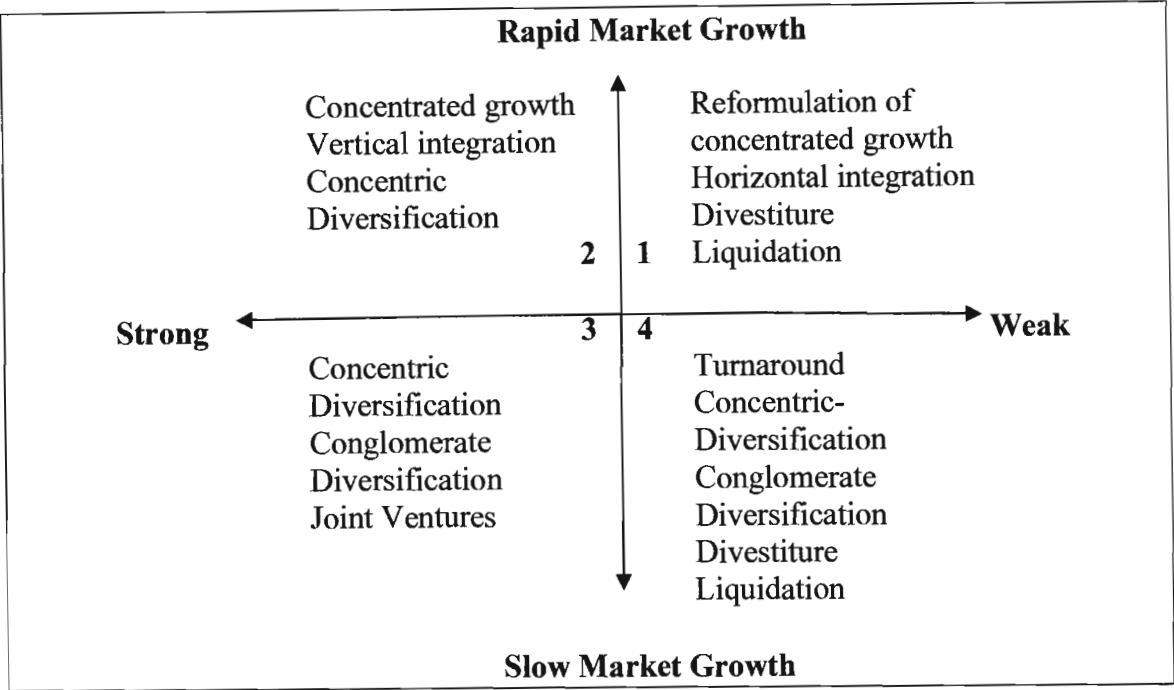
Figure 2.7, the grand strategy selection matrix, has two variables which are of importance for AMS in the selection process. The first is the purpose of the grand strategy, and second is the choice of an external or internal emphasis for growth and profitability (Pearce and Robinson, 2003). Quadrant 1 indicates a firm which is overcommitted to a particular business with limited growth opportunities. If AMS is found to be in this position it will need to follow a vertical integration strategy where the firm would acquire companies which provide the spares for breakdown maintenance. This is a backward vertical integration. If AMS takes the ash and coal conveying plant operating, the firm will be following a forward vertical integration. Conglomerate diversification is based on acquiring non - related companies on the consideration of profits. Since AMS is a small to medium enterprise it lacks the financial resources to invest in other profitable businesses, but is required to build on its resources, capabilities and core competences (Ehlers and Lazenby, 2004) If the



operation of AMS is inefficient, the company must turnaround the poorly performing processes by streamlining the internal processes and eliminating unproductive internal processes. This is depicted in quadrant two. If AMS is found in quadrant three it can utilise its internal capabilities to maximise strengths in order to achieve economies of scale. If there is a big enough demand for the company's current portfolio of services in other power stations the firm can follow a concentrated growth strategy which is market penetration by utilising its current services to penetrate the market. The other strategies the firm can follow are market development and product development. AMS can utilise the product development strategy to provide maintenance services related to its current line of services. The other services which are related to its current services are condition monitoring, conveyor belt hot and cold splicing, pulley lagging and supplies of parts and materials. Innovation strategy which is also part of quadrant three can be utilised by AMS to develop a maintenance management system which is inline with the current maintenance techniques. To maximise the internal strengths of AMS the firm can choose to form strategic alliances with some of the technological advanced companies which are related to the current services offered by the firm. This would ensure a transfer of specialised skill and ensure a sustainable competitive advantage.

2.3.2.5 Model of grand strategy clusters

Figure 2.8: Model of grand strategy clusters



Source: Pearce and Robinson, (2003:210)

Figure 2.8 depicts the model of the grand strategy cluster which measures the two variables of AMS, the growth rate of the generic maintenance contracts, and the company's competitive position in the market. The industry life cycle model is utilised in the study to determine the current position of the contracts maintenance industry (Johnson and Scholes, 1998). If AMS is positioned in any one or more of the quadrants according to the variables discussed above, the firm can choose its strategies according to the grand strategies depicted in each quadrant. If AMS is positioned in quadrant 1 (strong position in a rapidly growing market), it would need to follow a concentrated growth strategy of providing the current services offered. If AMS has financial and labour resource which exceeds the demand for contract maintenance services at the other Power Stations the firm should consider vertical integration. The firm can also follow a concentric diversification strategy of acquiring businesses that are related to its current services offered in term of technology, markets or services. Examples of these companies would be firms which supply industrial equipment and spares. If AMS is positioned in quadrant two (weak competitive position in a rapidly growing market) the

firm would need to reformulate its concentrated growth strategy through market development, product development or a combination of both. Quadrant three indicates that AMS would be in this position if it has a weak competitive position and experiences slow market growth. The company would then need to follow a turnaround strategy, concentric diversification, conglomerate diversification, divestiture and a liquidation strategy. If AMS experiences a slow market growth for its generic maintenance services but has a strong competitive position the firm would be placed in quadrant four and would follow a concentric diversification strategy, conglomerate diversification or joint ventures. Quadrant four position indicate that AMS could utilise its current strengths as a base to diversify into services with more promising growth levels.

### **2.3.3 Evaluation of the strategic implementation**

This section evaluates the firm's implementation of strategy through the structure, controls, culture, leadership and management profiling categories.

#### **2.3.3.1 Structure**

This category is evaluated against the theory in Chapter Two to determine the possible strategic gaps present in the current structure of AMS. The theory assists in determining the appropriate structure for the firm, taking into consideration the strategic choices made by the firm.

#### **2.3.3.2 Controls**

This category is evaluated by comparing the data represented in Chapter Three to the control category theory in Chapter Two.

### 2.3.3.3 Culture

The category is evaluated by comparing the data represented in Chapter Three, which determines the current situation with respect to the culture category, to the culture theory in Chapter Two.

### 2.3.3.4 Leadership

This category is also evaluated by comparing the current situation faced by the firm represented by the data presented in Chapter Three to the theories in Chapter Two.

#### 2.3.3.4.1 Management profiling

The Myers Briggs type indicator is a personality profiling analysis tool which is utilised to determine the personalities of the directors, supervisors and the artisans within AMS. The various personnel would be judged according to the criteria discussed below (Fleisher and Bensoussan, 2003; Robbins and Decenzo, 2001).

*Extroverts (E) versus Introverts (I)* - extroverts are characterised by the following criteria: attention focused outward on people, things and action, sociable, easy to know, interaction, and energised by being with others. Introverts have the following characteristics: attention focused inward, concepts, ideas and feelings, hard to know, territorial and energised by being alone (Fleisher and Bensoussan, 2003).

*Sensing (S) versus Intuition (I)* - sensing individuals prefer to utilise their five senses to collect information and have the following characteristics: facts, details, reality, experiences, practical and down to earth. Intuitive individuals look at the big picture, and try to find meanings, relationships and possibilities of the situations that they are faced with. Intuition individuals are characterised by the following meaning, big picture, possibilities, and hunches, patterns, future, ingenious and head in the clouds (Fleisher and Bensoussan, 2003).

*Thinking (T) versus Feeling (F)* - thinking individuals are objective and logical with decision - making and have the following characteristics: objective, principles, policy, justice, categorise, critique, analyse, firmness, logic and an emphasis on why. Feeling

individuals have the following characteristics, subjective, personal values, circumstances, mercy, harmonise, appreciate, sympathize, persuasion, impact on people and an emphasis on who (Fleisher and Bensoussan, 2003).

*Judgment (J) versus Perception (P)* - this scale relates to the way AMS directors, supervisors and managers deal with the outside world. The AMS individuals with a judgmental attitude want to live in a planned, orderly way always wanting to control life. The judgmental individuals have the following characteristics, closure, decided, plan ahead, scheduled, planned, settled, fixed, completed, punctual, and purposeful and control events (Fleisher and Bensoussan, 2003). The perceptive individuals live in a spontaneous and flexible way (Fleisher and Bensoussan, 2003). These individuals are characterised by the following: options, open - minded, adapt as you go, spontaneous, open ended, pending, flexible, emergent, leisurely, adaptable, and respond to the moment (Fleisher and Bensoussan, 2003).

Figure 2.9: Behaviour Clusters

<b>Idealists-Intuitive Feeling (NF-</b> includes ENFJ, INFJ, ENFP, and INFP)	<b>Rational-Intuitive Thinking (NT-</b> includes ENTJ, INTJ, ENTP, and INTP)	<b>Guardians-Sensing Judging (SJ-</b> includes ESTJ, ISTJ, ESFJ, and ISFJ)	<b>Artisans-Sensing Perceiving (SP-</b> includes ESTP, ISTP, ESFP, and ISFP
A continuous search for identity, meaning and significance, relationship orientated, future orientated, focus on developing potential, facilitating growth through coaching, teaching, counselling and communication. Add value to companies by diffusing tension.	Seek knowledge, competence and achievement. Future orientated and trust logic and reason. Everything must be planned and proceed from carefully defined premises. Precise, perform long - range planning, high individualism, and are well suited for engineering and devising strategy.	Guardians want to belong and have membership in whatever group is theirs. Responsible and accountable, sometimes take on too much of responsibility and become overworked. Expect others to work hard. They are generous; provide service and duty to others. Want security and stability.	Freedom in decision - making. Want to graceful, bold and impressive to the customers. Optimistic, lose sight of distant goals, see opportunities which others miss. Focus on the present and seek adventure and experience. Cannot run projects to completion.

Source: Fleisher and Bensoussan, (2003).

Figure 2.9 indicates the behaviours of each of the personality types.

## ***2.4 Recommendations***

This section provides solutions to the strategic gaps identified in each category of the strategic analysis, strategic choice and strategic implementation. Recommendations are provided for the gaps identified in each category and subcategory of step 2 of the analysis section. The STEEP analysis of the strategic analysis determines the current and future trends faced by AMS according to the social, technological, economic, environmental and political categories. The industry analysis determines the profit potential and attractiveness of the current services provided by AMS within the maintenance services industry. The competitive environment determines the current and future competitors of the firm and the competitive position within the maintenance services industry. The functional capability and resource analysis determines the rare, valuable and inimitable resources of AMS. Strategic gaps will occur if AMS strategies are not aligned to the current strategic analysis. Recommendations will be provided in this section which will be indicated in Chapter Five. The strategic choice evaluation category of the analysis section will assist in determining the level of the strategic choice gaps. The strategic choice category of the case study section determines where the company wants to be in the contract maintenance services industry, whilst the analysis section evaluates the strategic choices according to the industry life cycle, positioning, value chain and a match between the strengths and opportunities of the firm indicated by the SWOT interaction matrix. The current structure will be compared to the required structure and the recommendations will be presented according to the amount of change required.

## ***2.5 Summary***

- Chapter Two provided an in-depth discussion of the framework developed in Chapter One which is utilised in the study to determine and provide recommendations for the possible strategic gaps.
- Step one of the framework determines the strategic analysis, strategic choices and strategic implementation. The strategic analysis of step one is made up of

the remote, industry, operating resources, capabilities, and the core competencies. The remote environment identifies the issues facing AMS over which it has no control. The remote environment is made up of the political/legal segment which defines the legal and regulatory factors to which AMS must adhere. It is also made up of the economic segment which determines the nature and direction of the South African economy. The social segment determines the characteristics of the societal context within which AMS exists. The remote environment also includes the technological environment which affects the survival of AMS due to advancements in maintenance technology and techniques. The remote environment also includes the environmental segment which indicates the physical and biological environments within which AMS exists. This segment indicates the growing concern of governments on global warming, pollution and their affects on the future generations. The final segment is the global segment which affects AMS. This segment indicates borderless industries created by technological advancements and reduced trade barriers among nations. The industry environment of step one is utilised to determine the profit potential of the maintenance industry by determining the current threat of new entrants, bargaining power of suppliers and buyers, threat of substitute products, and rivalry among existing competitors. The operating environment of step one includes determining the competitors actions, customer needs and the level of availability of skilled labour. The resources, capabilities and core competencies are part of the internal environment within step one of the framework.

- Companies are competing with intangible assets due to the requirements of the new economy. The capabilities of AMS are its capacity to deploy its resources that have been integrated to achieve a desired end state of ensuring a continuous availability of the ash and coal conveying plants. The core competencies of AMS must be valuable, rare and not easily imitated. The strategic choice of step one determines the functional and business level strategies of AMS. The functional strategies must ensure that AMS attains superior efficiency, quality, innovation and customer responsiveness. The business level strategies of AMS



determine who its target market is, what needs the target customers have that the company will satisfy (determining which customer needs to satisfy) and how those needs will be satisfied. The last category of step one is to determine the strategic implementation. The strategic implementation is made up of the structure, controls, and culture and leadership subcategories. The structure is utilised to implement AMS strategies to ensure the strategic objectives are achieved. The controls also ensure that the strategic objectives of AMS are achieved. Organisational culture refers to dominant beliefs, values and norms of the members of the group that form the organisation. Leadership ensures the AMS management team is able to direct and coordinate the various activities of the firm successfully.

- Step two of the framework evaluates the strategic analysis, the strategic choice and determines the strategic options, and evaluates the strategic implementation. The evaluation of the strategic analysis in step two includes the following analysis techniques: STEEP, industry, competitor, stakeholder, functional capability and resource analysis, and the SWOT analysis which assists in developing the strategic options for AMS. The evaluation of the strategic choice and strategic options of step two is made up of the SWOT interaction matrix, industry life cycle, positioning, value chain, grand strategy matrix and grand strategy clusters. The interaction matrix determines the most appropriate strategies by ensuring a tight fit between the external opportunities and the internal strengths of AMS. The evaluation of the strategic implementation is the final category of step two and includes the following subcategories: structure, controls, culture, and leadership. The leadership subcategory is also made up of the management profiling analysis technique.
- Step three of the framework sets out recommendations on the strategic gaps identified in step two for each of the categories and subcategories.

The next chapter presents the data on each category of step one.

## **CHAPTER 3: REPRESENTATION OF DATA**

### ***3.1 Introduction***

This chapter represents the data collected for each of the categories and subcategories of step one of the framework developed in Chapter One (Figure 1.3).

### ***3.2 Remote Environment***

#### **3.2.1 Political/Legal**

According to Jeff Clark (in Jackson, 2005), government's expansion within the state owned enterprises will focus on black economic empowerment companies. The larger companies tendering for these expansion contracts will need to procure 30 percent of contract products and services from BEE firms (Jackson, 2005). The government has made changes to the black economic empowerment policies by means of a more stringent drive towards empowerment of the previously disadvantaged individuals (internet 8). Table 3.1 depicts the new weighted elements of the scorecard to assess BEE if companies are BEE compliant are as follows: ownership 20%, management 10%, employment equity 10%, skills development 20%, preferential procurement 20%, enterprise development 10%, Corporate Social Responsibility 10% (internet 9, and services SETA, 2005). Black ownership is not the only factor that is taken into account. Also considered are the number of black women employees, disabled employees and the company preferential procurement to black small to medium enterprises. For companies to rely just on black ownership is not enough. Training and development is also another factor that government has introduced to its black economic policies. AMS is a black women owned organisation and has increased its affirmative action ratios to 62 percent. The supervisory and management level is currently lacking which has a 25 percent black representation. Secondary data on the company's safety management system has revealed non - conformance to the Occupational Health and Safety Act of South Africa to ensure a safe working environment. The firm has not made the legal

appointments of safety representatives and safety officers required by the Occupational, Health and Safety Act of 1993. Interviews with the directors and managers have indicated a total ignorance of incentives offered by government to small to medium enterprises. Documentary analysis on the firm's finances has shown AMS has conformed to the legal requirements of the South African Revenue Services. The company has made regular payments for tax, regional services council, compensation commissioner, skills development levy and unemployment insurance fund. The company has also performed well in developing employment contracts which adhere to the South African labour laws.

Figure 3.1 indicates that in order for companies to be eligible to tender for contracts from government, parastatals and big businesses, firms such as AMS need to score 65% or above on the BEE scorecard.

Figure 3.1: The BEE Scorecard

<b>Areas</b>	<b>% Weighting</b>	<b>How this is measured</b>
<b><i>Equity Ownership</i></b>	20%	Black-Empowerment 25.1%, Black Owned 50.1% based on the share of economic benefits of black ownership
<b><i>Management</i></b>	10%	Ranging from 10% to 51%. Refers to black people in executive management or executive board members
<b><i>Employment Equity</i></b>	10%	Compliance with employment equity legislation, an equitable spread of staff at all levels of the organisation. (85%-racial, 54%-female, and 4% disability)
<b><i>Skills Development</i></b>	20%	Compliance with Skills Development Legislation. Investment in the development of black staff, especially professional, technical and management staff. This must be skills development for transformation.
<b><i>Preferential Procurement</i></b>	20%	At least 20% of the company's total procurement must be spent on black - owned companies.
<b><i>Enterprise Development</i></b>	10%	How much does the company invest in the establishment and growth of black enterprises? This can be money, skills, equipment, and access to markets. It is measured on black owned organizations as a percentage of total assets.
<b><i>Social Development</i></b>	10%	Any number of initiatives to create jobs that improves skills and employs women, disabled or youth or empowers the community. It can include rural investment, good employee benefit programs, support to suppliers, and community development.
<b>Total</b>	100%	

Source: SETA, Newsletter (2005:8)

### 3.2.2 Economic

According to Alec Erwin, the Public Enterprise Minister of South Africa, government has planned investments for the rehabilitation of Camden, Grootvlei and Komati power stations, and also the construction of two peaking gas fired power stations to handle short term loads (Boyle, 2005). Eskom will also make unspecified investments into the Pebble Bed Molecular Reactor nuclear power programme (Boyle, 2005). Government is also looking to manage its shift in economic policy from privatisation towards state driven growth. “A key role that we see for state enterprises is to be drivers of growth and development, working closely with the private sector”, according to Mr. Alec Erwin (in Boyle, 2005). Government estimates a total of R165 billion for the five year investment targets of the major state owned utilities (Boyle, 2005). Eskom, the South African utility company has underestimated the demand for electricity in the past and now is forced to expand its electricity generation capacity. In March 2005 the net generation of electricity was 4% higher than previous year, which amounted to 318 billion kilowatthours (internet 10). Eskom has less than 4% spare generating capacity during peak loads and is urgently required to boost the existing 35000 megawatt generating capacity of its national network (Boyle, 2005)

South Africa's excellent fiscal and monetary policy have created a very stable economy and the country's GDP is expected to grow at a rate of 4.3% in the year 2005 to 2006 and also grow at an average of 4.2% over the next three years (internet 11; Davies, 2005). South Africa ranks as a middle income country, but the income disparities are among the widest in the world (internet 12). The official unemployment rate is greater than 25%, though unofficial estimates go as high as 40% (internet 12). The government is focusing on creating jobs, improving the overall standard of living, and increasing exports (internet 12). According to Woodroffe (internet 12) South Africa ranks as one of the most unequal societies in the world. The measure for income inequality is the Gini Coefficient, and ranges between zero and one and when multiplied by a factor of one hundred, it ranges between zero and one hundred (internet 12). The Gini Coefficients of countries around 30 indicates an equal society, whilst coefficients at 55 indicate high inequality (internet 12) . The Gini coefficient of South Africa currently stands at 65, whilst the world's Gini coefficient is 66 (internet 12). High Gini Coefficients are

directly linked to political instability, and they create incentives for crime, labour market entrance barriers, and reduce economic growth (internet 12). The Economist Intelligence unit expects the average inflation for 2006-2007 to be within the target range of 3% to 6% due to the sound fiscal and monetary policies adopted by the South African government (internet 13; Davies, 2005). The interest rate for borrowing money from the South African bank is currently at 10.5% (Davies, 2005).

### **3.2.3 Social**

The South African government has identified the small to medium enterprises as the drivers for poverty alleviation and job creation (Ladzanil, 2003). This is fast becoming a social responsibility for all large firms to procure services from previously disadvantaged small to medium enterprises (SETA Newsletter, 2005). Research has shown the world's economy is fast becoming a knowledge economy with technology being the major drivers (Kotze', 2003). The knowledge economy requires highly skilled employees. South Africa has a problem due to a high percentage of the workforce being unskilled and unemployed (Human Research Council, 2003). The skills development strategy adopted by the government has become a major social responsibility for firms. Gender Equity and the employment of disabled people are some of the social activities occurring within South Africa to promote workforce diversity (SETA Newsletter, 2005). According to Eskom's procurement policy, black women owned organizations and black economic empowered firms are given preference over other companies as this helps to contribute to an equitable transformation of the South African business environment.

The Aids epidemic is becoming a social issue due to the alarming rates of infections among South Africans (Human Research council, 2003).

Figure 3.2: Projected changes in the size of the labour force, 2000-2015

Year	No-Aids scenario (millions)	Aids scenario (millions)	Percentage Difference
2000	14.5	14.4	-0.7
2005	15.8	15.1	-4.0
2010	17.2	15.1	-12
2015	18.7	14.8	-21

Sources: Human Research Council, (2003:191).

The Aids epidemic will drastically reduce the labour force in the year 2015 by 21%.

Figure 3.3: Projected Life expectancy at Birth, 1999-2010

Life Expectancy	1999	2005	2010
Life Expectancy: Female	54 years	43 years	37 years
Life Expectancy: Male	50 years	43 years	38 years
Life Expectancy (ASSA2000)	55 years	46 years	41 years

Source: Human Research Council, (2003:191).

Figure 3.3 indicates the projected decline in life expectancy among South African male and females, and also an indication by the Actuarial Society of South Africa life expectancy. These drops in life expectancy are alarming and will contribute to the reduction in productive lifespan.

3.2.4 Technological

Research has shown that one of the most important factors that make small to medium enterprises effective, competitive and productive in South Africa is the use of

technology (Sunday Times, 2005). AMS makes use of the internet to make payments to the receiver of revenue for tax, regional services, salaries and compensation commissioner. The company also makes use of a software based time keeping system to track employee absenteeism, quick books financial system management system to ensure the accuracy of transactions, and a Microsoft Excel based transport management system.

According to ARC Advisory group survey, “Trends in Asset Maintenance and Management”, an integrated condition monitoring system can increase equipment productivity by 30%, increase workforce efficiency by 20%, increase equipment life by 10%, reduce defects by 10%, reduce downtime by 20%, reduce inventory costs by 25%, and reduce unplanned breakdowns by 25%. Maintenance technologies are now moving at a faster rate where software development firms such as Rockwell Automation (Entek Erd) and Pragma are some of the many process control company’s that are producing software to analyse equipment performance (internet 7). This software will be able to predict equipment failure before they occur to reduce downtime, increase the reliability and life cycle of plant and machinery. The fast rate of technological developments is having a greater affect on specialised services companies. The maintenance function is becoming more integrative with the use of technologies. Software packages such as the Rockwell Automation Odyssey can perform multiple tasks, such as condition monitoring, and can perform analysis and integration with ERP systems such as SAP, and can also be integrated with SCADA packages, plant equipment, and maintenance systems (internet 6). All of these developments help to provide a more effective solution to functions such as maintenance. The Japanese have made improvements to maintenance techniques by utilising operators to perform maintenance tasks which is known as total plant maintenance (Stevenson, 2002)

### **3.2.5 Environmental**

Interviews with the entire organisational members have revealed a lack of knowledge with respect to the environmental laws. Documentary analysis has indicated that AMS must adhere to the procedural requirements of disposing chemically hazardous wastes



such as lubricating oil, grease and consumables used in cleaning the lubricating oils (Eskom Tender documents, 2005). The company has been unable to develop and implement a hazardous waste management system. Most of the power stations are ISO14001 compliant and require the contractors working at the power stations to adhere to these regulations. Some power stations have indicated immediate termination of contracts due to non - conformance to the Environmental Conservation Act of 1989 (Eskom tender documents, 2005).

### **3.2.6 Global Segment**

According to the South African government, there are approximately 90 companies that want to build and operate new power generation capacity in South Africa (Jackson, 2005). This is the first time that government will allow private international companies to build and operate power stations in South Africa, thus breaking Eskom's monopoly (Jackson, 2005). The two new gas fired power stations that are fired by kerosene will be built in the Eastern Cape and Kwa-Zulu Natal. Government has indicated that these independent power producers will have to have 33% equity participation of black economic empowered companies (Jackson, 2005).

### **3.3 Contract Maintenance Industry Environment**

A maintenance outsourcing survey performed by the Plant Maintenance Resource Centre has indicated the following, one third of the responding organizations have spent a third of their maintenance budgets on contractors (internet 14). The reasons for utilising the services of these contractors is to increase labour productivity, reduce maintenance costs and focus in - house personnel on core business activities. Expenditure on maintenance contractors as a percentage of maintenance budgets has increased in recent years on minor capital work, labour hire, non - destructive testing, condition monitoring and offsite overhauls and repairs (internet 14). Although many maintenance contractors are targeting their marketing efforts at total maintenance of plants, which includes the maintenance planning and scheduling, supervision and labour

provision and also determining the scope of maintenance work performed, very few respondents have indicated any interest in utilizing maintenance contractors for the entire plant maintenance (internet 14).

Secondary data on the firm's marketing initiative has revealed that many of the power stations are reluctant to contract some of the generic maintenance functions such as mechanical and electrical maintenance due to currently large complements of labour resources. The secondary marketing data has also indicated that specialist control and instrumentation engineering and maintenance tasks at Matla and Camden power station have been outsourced completely to Siemens South Africa. This is due to the lack of skills on the new Siemens TXP distributed control system. The maintenance function within many power stations is becoming a focal point due to many of the power stations entering their thirty year life cycles. This creates huge expenditure on upgrades and maintenance due to the decreasing reliability created by the wear out of equipment (Visser and Pretorius, 2003)

### **3.3.1 Threats of New Entrants**

Interviews performed with the Amalahle management have pointed out the low barrier of entrance for the Majuba power station coal and ash plant maintenance contract due to AMS being provided with most of the capital equipment, specialised tools and spares. The financial resources required is almost negligible with the major resource required being labour, skills and knowledge. The companies marketing documents have indicated that most of the other power stations have started to contract some of the maintenance functions to their existing employees to increase productivity and reduce labour costs. The original equipment manufacturers such as Siemens, ABB, and GEC have started to target the maintenance services industry by providing these services to the equipment they manufacture. Siemens already has contracts with Camden and Matla power station, whilst ABB has maintenance contracts with the Arnot power station. Interviews with the directors have indicated that GEC has tendered for the Majuba power station mills maintenance contract and for which it was 30% cheaper than competitors. Many of the maintenance functions have been contracted to employees at

some of the power stations which create future competitive problems among these small enterprises. The maintenance manager and C&I maintenance managers are of the opinion that contracting the maintenance functions is the way forward.

According to Peter Murphy, a specialist maintenance consultant, maintenance outsourcing will continue to grow. The drivers for this growth will be the current cost to productivity ratios of Eskom employees which is 2, 5 times more than the required productivity. Government's strategic objective is to stimulate growth by not privatising Eskom. The government also aims of ensuring that Eskom continues to be a low cost producer of electricity so as to attract foreign manufacturers to South Africa. The strategy of not privatising Eskom assists in stimulating employment, growth and training and development among small to medium enterprises by outsourcing non - core business functions. Outsourcing of the maintenance functions would increase if it were to provide a cost advantage to power generation.

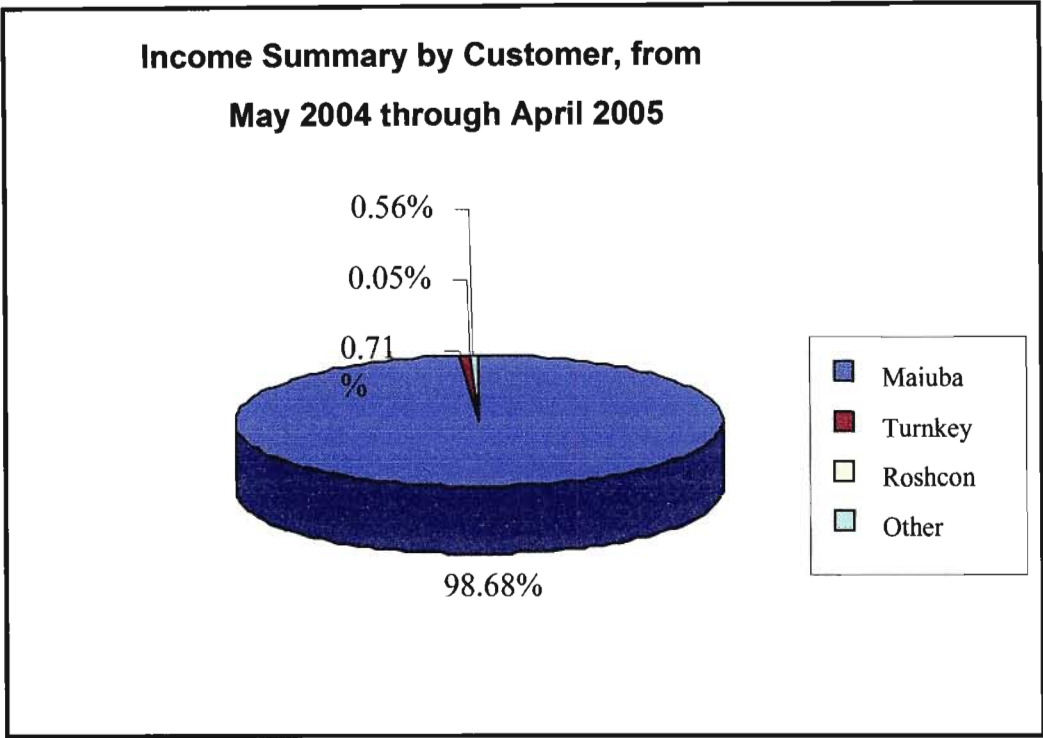
### **3.3.2 Bargaining Power of Suppliers**

AMS does not rely on suppliers as most of the spares required are provided by the Eskom Majuba power station.

### **3.3.3 Bargaining Power of Buyers**

Documentary data on the firm's sales has indicated a total reliance by AMS on Majuba power station. The company currently provides a generic maintenance service which has a low switching cost for the customer. The Eskom procurement department utilises sophisticated supplier price assessments software packages by performing probability statistical analysis on the supplier tender prices. These prices are closely linked to market related prices. Interviews with the directors have indicated that the Eskom procurement department evaluates contracts on prices. In most cases when AMS tendered for short contracts they were awarded the contracts on the basis of price.

Figure 3.4: Income Summary by Customer, from May 2004 though to April 2005

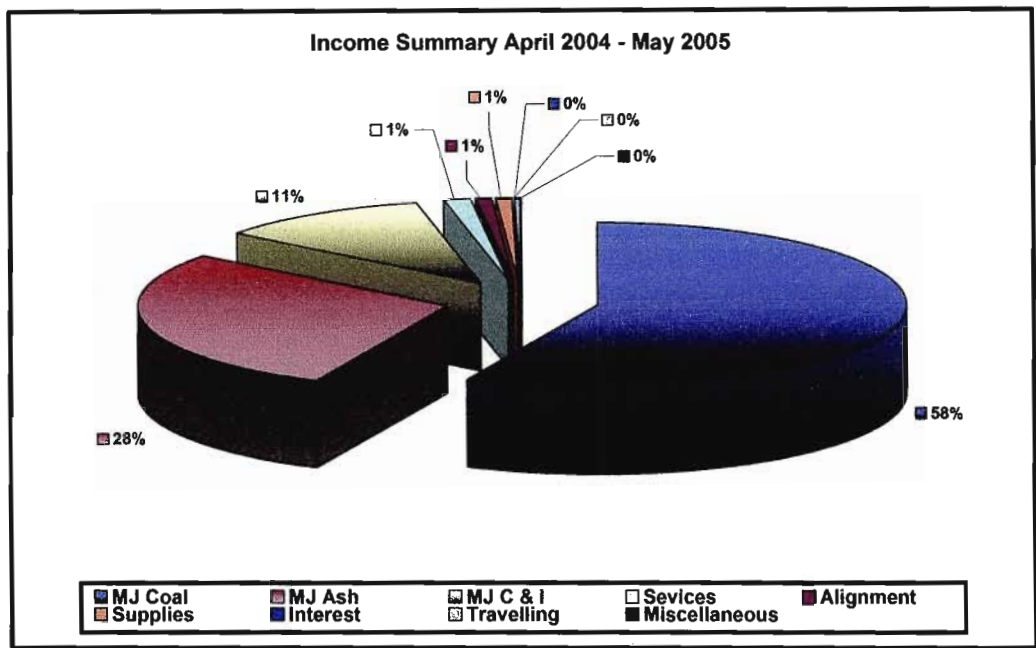


Source: Data analysis of the AMS financial records (2005)

Figure 3.4 indicates almost a total reliance of AMS on the Majuba power station for its revenue. The company generates 98,68% of its income from the ash and coal plant maintenance, operating and cleaning, and laser alignment contracts with Majuba power station. Turnkey Projects which is a competitor of AMS relies on the firm for alignment services which contributes 0.71 % of the company’s income. The company also provides a laser alignment service to Roshcon and other companies.

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Figure 3.5: Income Summary from April 2004 through to May 2005 by account type.



Source: Data analysis of the companies’ financial records (2005)

Figure 3.5 displays the high percentage of income from Majuba Power Station.

Category 1, Majuba (MJ) Coal: 57.01%

Category 2, Majuba Ash (MJ): 28.45%

Category 3, Majuba C&I (MJ): 11.15%

Category 4, Services : 1.32%

Category 5, Alignment: 0.93%

Category 6, Supplies: 0.80%

Category 7, Interest: 0.18%

Category 8, Traveling: 0.14%

Category 9, Miscellaneous: 0.02%



### **3.3.4 Threat of substitute products**

Conditioning monitoring techniques have improved drastically in the past years (internet 6). Companies such as Siemens, Rockwell Automation, and ABB have manufactured technological advanced equipment which can predict failures (internet 7). Increased expenditure on maintenance by manufacturing companies will create new opportunities for original equipment manufacturers to improve technologies to reduce maintenance expenses. The new techniques adopted by the Japanese of utilising operators as the maintenance crew will substitute AMS in the near future (Stevenson, 2002). A technological development with online condition monitoring equipment which predicts failures before they occur helps operators to prepare for maintenance tasks. These techniques will reduce the amount of preventative and breakdown maintenance tasks required and achieve cost savings on spares and equipment required for breakdowns. Eskom has shown their low propensity to substitute the current maintenance technologies due to the high switching costs. In the interviews with the directors, Eskom managers and supervisors have indicated the threat of other small to medium enterprises entering the contract maintenance industry. This has been created by other power stations contracting the maintenance functions to Eskom employees. Roshcon is also a threat, as they have penetrated the contract maintenance services industry at the previously mothballed power stations which are currently returning to service. Roshcon is a subsidiary of Eskom and is therefore a preferred supplier of contract maintenance services.

### **3.3.5 Rivalry among existing competitors**

The existing contractors at Majuba Power Station have entered into non - formal gentlemen's agreements to avoid tendering for each others contracts. Imperfect market conditions exist, with Eskom contracting some of the maintenance service work to Roshcon which is a subsidiary of Eskom. Some power stations have also contracted maintenance functions to previous employees.

### ***3.4. Operating Environment***

The new business economy has produced an increasingly competitive environment with customers also expecting lower costs at higher perceived value through continuous quality improvements (Kotze, 2003).

#### **3.4.1 Customers**

Trends show an increase in the number of customers contracting some of the maintenance functions of power generation. Tutuka, Matla, Majuba, Duvha, Grootvlei, Camden and Komati are examples of power stations that have started contracting some of their maintenance functions. Drivers for contracting are cost reduction and productivity improvements. Some of the power stations have started to contract the maintenance functions to Eskom employees and to Eskom enterprises. Maintenance contracting was first introduced in power generation by Majuba Power Station and ever since has extended into other power stations. AMS marketing documents have indicated mixed feelings among the maintenance managers in some of the other power stations towards contracting out maintenance totally. This is in line with the plant maintenance resource centre maintenance outsourcing survey with many firm's being comfortable about performing to perform the maintenance function themselves (internet 14). The president of a maintenance consulting firm has indicated that maintenance is a core function and needs to be kept in - house (internet 15).

Many of the power stations are reaching their 30 year life cycle which places much emphasis on maintenance, as failures are expected to increase (Visser and Pretorius, 2003). Therefore many power stations are spending on refurbishment projects to sustain the generating capacity and extend the life cycle of these stations. The projects will create a demand for small capital construction work. The directors have indicated that there will be an increase in the demand for maintenance work, especially preventative maintenance, and have mentioned their strong intentions of remaining as a preventative maintenance solutions provider. On the other hand research has shown that the demand will persist more for construction work, specialised maintenance services and offsite refurbishments of machinery and equipment, and the maintenance of the previously

mothballed stations such as Camden, Grootvlei and Camden. Interviews with some of the buying departments have also noted a cost advantage of utilising the services of Eskom enterprises for maintenance functions since they are a subsidiary of Eskom.

Eskom has outlined in its investment programme for new electricity capacity. It will cost the utility company in the region of R200 billion over the next 25 years (Jackson, 2005). The company has assured the South African people that there will be enough electricity for the countries growing economy. The government aims at offering foreign companies and utilities (Independent Power Producers, IPP) an investment opportunity in the local South African market. Eskom will offer 30% of the new capacity over the next five years to the IPP's, at a planned cost of R23 billion (Jackson, 2005). The possible expansion projects for Eskom include a combined gas cycle turbine to produce 1500MW of power, possibly near Coega in the Eastern Cape, adding three power units at the Matimba power station in Limpopo, and a new coal fired 400MW plant possibly to be built near coal reserves in Limpopo and Mpumalanga (Jackson, 2005).

Eskom is one of the lowest cost producers of electricity in the world. Eskom operates 20 power stations with a generating capacity of 35,200 MWe, about 91% of which is coal-fired. Nominal generating capacity for the company is 39,154 MWe (internet 16). The company's generation portfolio includes a nuclear power station, gas turbine facilities, and conventional and pumped-storage hydroelectric plants (internet 16).

Survey results on maintenance outsourcing have shown that the most common measures for contractor performance were price/costs, safety performance and work quality/rework (internet 14). The key performance indicator document of the Majuba power station has indicated the following requirements for AMS:

- production losses on the ash and coal plant cannot exceed 6396 megawatt hours;
- five authorized personnel on the Majuba power station low voltage regulations;
- AMS disabling injury rate must be zero;
- maintenance safety NOSA rating of 97%;
- productivity improvements of cost control within 2% of the forecasted budget;



- incident notification of non - conformances of a average greater than thirty days must be zero;
- full RCM attendance of employees;
- a minimum of 80 defects raised on the ash and coal plant;
- a call out response time of 45 minutes, a one and half hour train offloading times;
- a quality manual in place;
- incorrect quality control plans contributing to costs greater than five thousand rands or a production loss and rework incidents over a year period must not be more than 10.

Interviews with the ash plant maintenance supervisor indicate a lack of experience and knowledge on the control and instrumentation maintenance contract. The supervisors have also mentioned the enormous integration problems which occur among the operating, maintenance and engineering departments.

The Majuba power station conveyor belts are reaching their life cycles as stipulated by the manufacturers, and there has been an increase in the number of conveyor belt splices required in the past year. The supervisor has indicated that the splicing contractors are unable to provide a swift splicing and pulley lagging service because the splicing contractors are located in Secunda and Middleburg, which are roughly 150km to 250 km away from Majuba power station. The other issue is that these contractors are unable to take out permits for isolating the plant and rely on AMS. The splicing contractors also charge exorbitant prices for traveling to the Majuba site. The splicing contractors rely on AMS to prepare the belts for splicing, for which AMS is not compensated. The supervisor has indicated his support for AMS to enter this market. He has also advised that the geographical location within which AMS is situated is an advantage as most of the other splicing contractors are situated in Witbank. This creates an opportunity for AMS to target the surrounding areas for emergency splicing services. The other maintenance companies such as Roshcon do not have the belt splicing capabilities.

Majuba power station currently has problems with its outside plant operating department. The operators lack technical and plant process knowledge. The department relies on AMS to assist with process problems. The C&I manager is also contemplating contracting the coal plant C&I Maintenance function in 2006 due to high turnover of staff. Cleaning contract on the ash and coal plant will become a maintenance function in 2006 due to the integration problems between maintenance and the cleaning contractor, which is currently an operating function, and this therefore creates an opportunity for AMS to tender for this contract.

### **3.4.2 Labour**

Due to South Africa's severe skills shortage, Labour Minister Memmathisi Mdlalana has given Sasol permission to import 821 of 2000 welders, riggers, electricians and instrument technicians to work on its clean fuel project (Blaine, 2005). Finance Minister Trevor Manuel has given the education department R1, 5 billion to recapitalise further education and training colleges. The education department lacks the information on the number of artisans who have been trained in recent years and the number that have been employed (Blaine, 2005)

Economist have been warning that South Africa's economy is fast becoming knowledge - based and recently there have been numerous job losses within the mining, construction and manufacturing sector where South Africa's unskilled labour finds jobs (Blaine, 2005). Tertiary education institutions faced many problems as they provided courses that were not accredited by the department (Blaine, 2005). On the other hand courses offered by the department were outdated and FET college graduates were not finding jobs (Blaine, 2005). According to the department's 2002 survey 12% of fulltime students were taking non approved courses, of which 70% of these full time equivalents were engineering (Blaine, 2005).

According to Daniel Kasmir (in Garun, 2005), HR Director of Manpower Europe, Middle East and Asia, there will be a world - wide shortage of skills in the years to come. The contributing factor to the world wide shortage is the aging population in the

developed countries (Blaine, 2005). South Africa on the other hand is not faced with the demographic problem of an aging population. Low population growth rates in Europe have led to a continuous shrinking of the pool of talent (Blaine, 2005). The skills shortage has provided opportunities for emerging countries such as China and India. Kasmir (in Garun, 2005) has indicated in a conference held in South Africa that South Africans need to align themselves with this trend. He also believes that the jobs of the future will require higher levels of education, and massive training due to technological developments, and he believes that the curricula offered by tertiary institutions need to be more relevant to the new economy. He has praised South Africa's skill development strategy, but has informed that a culture of lifelong learning is needed. South Africa has proposed legislation to curb flexible staffing which Kasmir feels would do more harm than good (Blaine, 2005). An article by the South African labour department, "State of skills in South Africa" (2005) has shown that experienced and qualified artisans are in short supply (internet 17).

There has been an increase in the turnover of staff in AMS due to the increase in demand for suitably qualified and experienced artisans by other small and large companies. The location of the firm makes it difficult to attract qualified artisans. The Eskom Majuba power station has also been experiencing difficulties in retaining and attracting suitably qualified artisans and technicians.

### **3.4.2 Competitors**

*Eskom Enterprises Roshcon:* Eskom's procurement policy documents identify Roshcon as being the preferred supplier for maintenance services within Eskom power generation. Most of the employees and directors are unaware of the current threats facing Amalahle Maintenance Services and all still feel they are protected. Roshcon is a subsidiary of Eskom. The company provides the following services to Eskom: ash dump cleaning and ash removal, and coal reclaim and stacking. Their primary target market was to provide earth moving equipment and machinery to stack the coal and transport the ash to the dumps. Eskom has contracted the ash and coal plant maintenance to Roshcon at other stations. The company has been awarded contracts at the Camden

power station, and Matla, Matimba, Arnott and Grootvlei power station. A key requirement to tender for the maintenance contracts at Camden, Grootvlei and Komati power station is a four million rands performance guarantee. Since Roshcon is a subsidiary of Eskom they have preference over all other companies due to Eskom's procurement policies (Eskom Procurement Policy documents). AMS has approached Roshcon to subcontract to them but was immediately turned away. The company has been able to increase its expertise on its new plant maintenance services.

*Other Small to Medium Enterprises:* The first power station to outsource its maintenance functions was the Majuba power station. The power station outsourced these functions due to an economic recession within the South African electricity industry from 1998 to 2000.

Low demand and negative growth had caused a negative impact on the Majuba power station. The station was moving towards closure, but through good leadership the Power Station kept on operating with the power station manager at that time Mr. Ben Steyn changing the operating regime to two shifts where the stations units would start up in the morning and shut down at night to cater for peak loads. Although this station was not designed for two shifting the power station engineers designed an operating procedure to assist with two shifting. The power station manager outsourced some of its maintenance functions to reduce costs. Many employees were afforded the opportunity to contract out their services. Currently the outsourcing approach has proved beneficial for the Majuba power station as they are able to run six units with half the resources as compared to other stations. This trend has extended to other power stations where the drivers for outsourcing are a large number of staff and cost reduction by increasing productivity and efficiency of resources. This creates an environment that is highly competitive for the future. Currently many of the contractors in Majuba power station, Mills maintenance, Boiler Feed Pump Services, Moya Mansi, Billy Hammond and Associates are still operating exclusively in Majuba due to resource constraints and are unable to grow. These companies are afraid to train employees to perform some of their functions due to the low barriers of entry and the possibility of the employees tendering for their contracts.

The equipment manufacturers such as ABB are experiencing difficulties in penetrating these markets as the small to medium enterprises have a considerable cost advantage. On the other hand General Electric (the original equipment manufacturer) was 30% cheaper than Mills Maintenance when the contract was put out on an open tender. Turnkey Projects is the only small to medium enterprise which has diversified into construction of the ash and coal conveying plants at the return to service power stations due to its engineering and project management capabilities.

*Large Companies:* Steinmuller has been successful to provide maintenance services on the fuel oil plant at Majuba and Camden power station. Other large companies such as DB Thermal and Babcock have also penetrated the maintenance services industry within power generation.

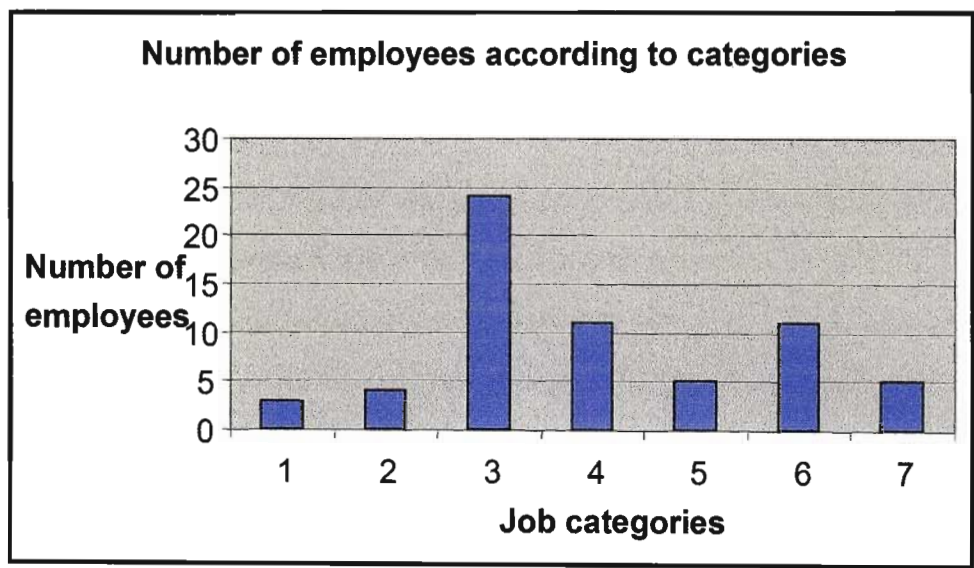
### ***3.5 Resource (Tangible and Intangible)***

Amalahle Maintenance Services relies mostly on its human capital. The company does not have a considerable amount of tangible assets as its core business is to provide a maintenance service. The company has 63 employees together with the directors, with most performing plant maintenance functions. Some are mechanical, electrical, and control and instrumentation, semi - skilled and unskilled labour. Some of the company's tangible resources are its finances, vehicles utilised for standby and on - site travelling, tools, equipment and laser alignment machinery.

AMS makes use of the internet to make payments to the Receiver of Revenue for tax, regional services, salaries and compensation commissioner. The company also makes use of a software based time keeping system to track employee absenteeism, Quick books financial system, and a Microsoft Excel based transport management system. Some of the company's intangible assets are its good relationship and reputation with the Majuba power station management team and employees. The company directors and employees have close relationships with some of the key managers within the Majuba power station. The entire organisation has created a relationship with the directors and supervisors of AMS built on friendship and trust. Other intangible assets are its

knowledge of the coal and ash systems, technical ability to perform laser alignment on the pumps, gearboxes and motors; technical qualifications on the mechanical, electrical and control and instrumentation disciplines matched with years of experience on the Coal and Ash plants.

Figure 3.6: Number of employees according to categories.



Source: Employee Record documents, (2005)

Figure 3.6 indicates the various categories as follows,

- |                                |                                     |
|--------------------------------|-------------------------------------|
| Category 1: administration = 3 | Category 5: unqualified artisan = 5 |
| Category 2: operators = 4      | Category 6: qualified artisans = 16 |
| Category 3: semi- skilled = 24 | Category 7: directors/members = 5   |
| Category 4: cleaners = 11      |                                     |

Figure 3.6 indicates the huge reliance of Amalable Maintenance Services on semi - skilled workers.

### ***3.6 Capabilities***

The company is capable of providing a fast breakdown maintenance service through the years of experience and knowledge gained within the maintenance industry. The firm is also capable of ensuring the continuous availability of the ash and coal plant. Majuba power station relies on AMS to provide a quick breakdown maintenance approach on the ash submerged scraper conveyor (SSC) which removes the coarse ash from the boiler. The SSC is a critical plant area as it can trip the unit if the SSC is stuck.

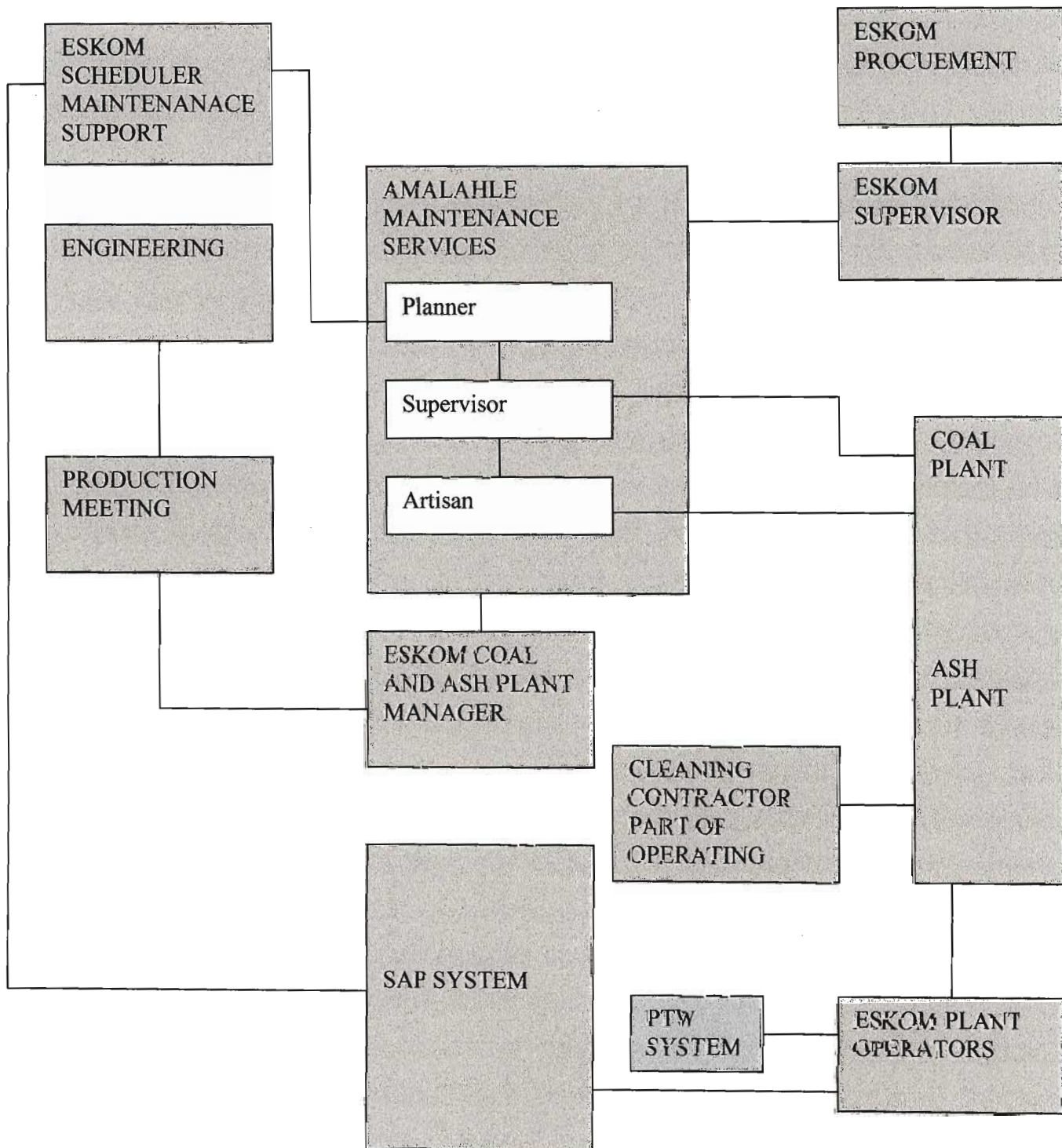
Other systems about which AMS has specialist knowledge over are the hydraulic systems of the train offloading plant. Only one member within the organisation understands the hydraulic system of the tippler plant. Interviews with the directors have revealed a lack of knowledge on the technical specifications of parts and equipment, especially when replacing bearings, couplings and gearboxes.

There have been several incidents where re-work has had to be performed on critical plant areas due to a lack of root cause analysis and proper quality procedures followed. Observations of the firm's production meetings and operations process indicated non-conformance to the Majuba power station safety system. On several occasions the company received non-conformance reports on the permit to work system of Majuba power station. The responsible artisans applied for permits from the operating department so that the plant isolations could be performed, but the isolation points were incorrect. The responsible artisans who apply for permits are legally required according to the plant safety regulations to be at the work site to ensure safe work is carried out. This is also required if permits are applied for subcontractors to work on site. An incident occurred with a splicing contractor where AMS applied for the permit and the contractor proceeded with the work on the plant which was not isolated and was not under supervision by the AMS responsible artisan. Non-conformance to the Eskom safety regulations can lead to an immediate suspension or termination of AMS contract.



### 3.6.1 Operations

Figure 3.7: Operations flow diagram for Majuba Power Station



Source: Observations of the company operations and interviews with the AMS directors and employees (2005).



The operations flow diagram depicted in Figure 3.7 indicates the current processes utilised by the firm to accomplish its business maintenance functions. The Eskom scheduler is responsible for generating the preventative maintenance job cards and capturing the plant defects into the SAP system. The plant defects are also captured by the Eskom operators into the SAP system. These defects are then printed by the Eskom scheduler who hands over the plant defects job cards to the AMS planner. A list of plant defects collected by the AMS artisans and semiskilled workers are also handed over to the scheduler by the AMS planner.

The plant defects list is handed over to the scheduler once the work is complete. The AMS planner's function is to collect a list of complete plant defects from all respective plant artisans and supervisors which are then handed over to the scheduler. The Eskom system requires that AMS capture the defect into the system prior to performing the corrective maintenance tasks. The company does not plan work in advance as it prints the list of preventative job cards at the beginning of every week, although Eskom's SAP maintenance system caters for preventative maintenance to be planned three months, six months and a year in advance. The morning meetings held at AMS offices with the Eskom's coal and ash plant line maintenance manager, supervisors and AMS personnel is utilised as the work measurement point. The production list helps the company determine whether the work planned through the production managers has been completed.

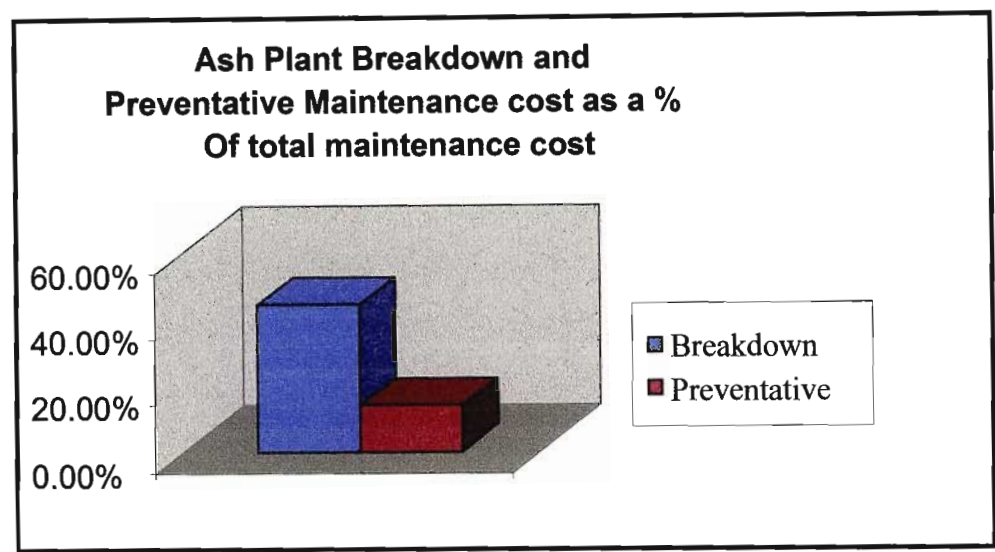
The company has a daily approach to plant maintenance. The company makes use of mostly semi - skilled workers to perform the duties on the plant. Some of the artisans are also unqualified. These employees learn by experience. The supervisors are required to work on the plant because there are so many unskilled personnel. The operations director has been increasing the number of employees in the last year and has employed 11 more semi - skilled workers during 2005. The artisans have been complaining about the spares which are being ordered. Some of the spares are incorrect and modifications have to be done on the plant to cater for these spares. On some occasions there are long delays for the spares due to the hierarchical buying processes within the Eskom buying department. The Eskom supervisors control the spares handling by strict budgets. The

maintenance personnel have complained about the lack of knowledge among the plant operators as they are called out when on standby for simple faults which required the operators to reset the switchgears. Incorrect operating procedures can lead to plant and equipment failures. The cleaning contractors have also contributed to plant and equipment failures because of a lack of the plant knowledge to understand the importance of washing away ash from the equipment. The artisans have also been complaining about the delays experienced with plant isolations performed by the operators when applying for a permit.

The Eskom schedulers who are responsible for the reliability centred maintenance (RCM) programme lack plant process and equipment technical knowledge because they do not work directly in the plant which creates a problem for ensuring an effective RCM programme. There have also been numerous complaints against the engineering department about the prolonged periods for sorting and fixing design related problems.

Observations have also been made that the company does not perform inspections, the maintenance tasks are allocated on a daily basis at the morning production meeting, and preventative maintenance job cards are not planned in advance.

Figure 3.8: Ash plant breakdown and preventative maintenance cost as a percentage of total maintenance costs for the year 2004.



Source: Research Data from interviews performed with Eskom Ash plant supervisors (2005)

Figure 3.8 indicates a considerably high cost for breakdowns which makes up 44, 8% of the total maintenance costs whilst preventative maintenance accounts for 14, 3% of the total maintenance costs.

**3.7 Competencies**

The core competencies of AMS are that its directors and employees have years of experience and knowledge on plant maintenance within the Eskom power generation ash and coal conveying plants. The company has acquired the mechanical, electrical, control and instrumentation technical knowledge through appropriately qualified artisans and technicians, and matched the experience and technical knowledge thereby enabling the company to provide a quick breakdown maintenance service. The directors and employees also understand the Eskom permit to work system and safety regulations, and technical information of the plant. The company has built up strong

relationships with the Eskom management team because of the extended years of service at the power station.

### ***3.8 Functional level strategy***

The various functions that AMS performs are mechanical, electrical, and control and instrumentation breakdown maintenance and preventative maintenance, operating and cleaning of the Tippler plant and laser alignment of pumps and motors. The firm operates within the functional business level, since all of the strategic plans revolve around the mechanical functions of ensuring the plant and equipment breakdowns are repaired.

The company provides pay bonus incentives that are linked to the ability of the organisation to save on vehicle maintenance and transport costs. The company does not provide training with respect to technical abilities, quality and safety. The only training the company provides is on the permit to work system and the safety induction course. The company implemented these systems training to protect the firm against non-conformance to the plant safety regulations. The company received numerous non-conformance reports from Majuba production management team for incorrect isolations on the permit to work application, working on the ash and coal plant without completing the limited access register and informing the operators of the work to be performed. The operations director has been successful in ensuring customer responsiveness to fixing breakdowns on the ash and coal plant. The quality and safety management systems have not been successfully implemented throughout the entire organisation because the members see these systems as a paperwork exercise.

The director has also complained about the number of decisions he has to make with respect to the daily operations. According to the mission statement initially set by the organization, the firm's functional level strategy is to ensure quality of the maintenance services, efficiency, and reliability of the maintenance services on the coal and ash plant. The other support functions of finance, marketing, procurement and general administration are currently performed within the required expectations. Financial

meetings are planned when the directors feel there is a need and the marketing function has been put on hold because the directors are unsure whether they can handle more contracts.

### ***3.9 Business level strategy***

Amalahle Maintenance Services have targeted companies seeking a preventative maintenance service on material handling plants. The company has positioned itself as a preventative maintenance solutions services provider, by providing generic mechanical, electrical and control and instrumentation breakdown and preventative based maintenance on the material handling plants. Although the company provides an operating and cleaning service on the Coal Tippler plant of Majuba power station this has not been the company's focus area as this is performed on a very small scale. The company has chosen a growth strategy by providing the current generic maintenance services to other power stations on the ash and coal conveying plants. Amalahle Maintenance Services aims to satisfy the following needs of its customer base: prevent plant failures by providing a preventative maintenance service; thereby ensuring full availability of the plant being maintained; reliability of the maintenance services provided; and also to ensure a quality management and safety system is in place which meets the customer's requirements ensuring no rework and a safe working environment and a plant which does not endanger the lives of the Eskom, contractors and AMS employees.

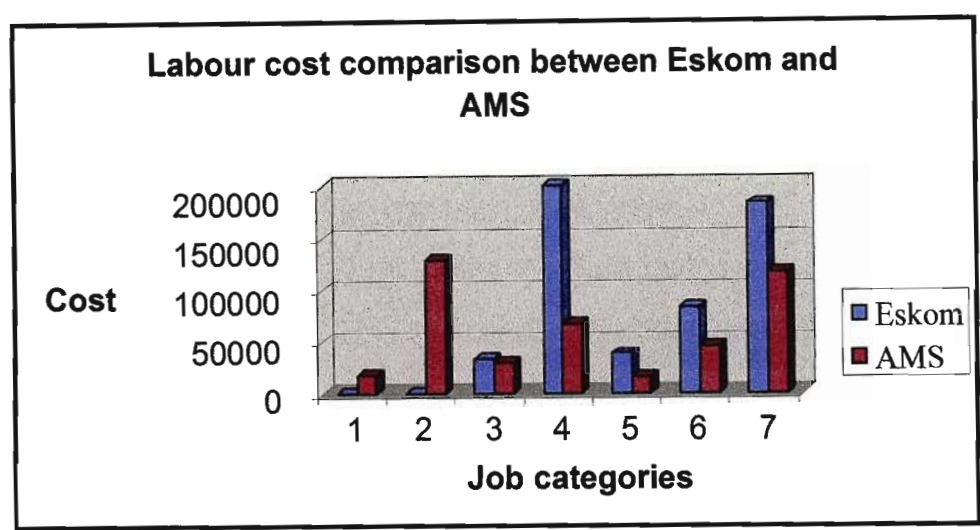
In order for AMS to satisfy the needs of its customers the firm requires the following competencies, process knowledge of the entire ash and coal plant, systems and equipment technical knowledge according to the mechanical, electrical and control and instrumentation skills. The firm is also required to perform a failure and criticality analysis on all equipment and plant according to the reliability centred maintenance programme identified in the maintenance techniques section in Chapter One (internet 15). A root cause of all failures must be performed which leads to extending the life cycle of the ash and coal plant and also to the development of preventative maintenance

programmes. The quality control plans must be in line to ensure no rework and maintenance induced failures occur (internet 7).

In order for AMS to ensure availability of the plant, the firm must perform preventative maintenance, predictive maintenance and proactive maintenance on the ash and coal plant. It is imperative for AMS to have the competencies to prevent failures. The current core competency of the firm is its swift breakdown maintenance expertise and knowledge on the ash and coal plant. The predictive maintenance tasks, which include offline condition monitoring, are performed by external contractors. The root cause analysis of failures is an Eskom engineering department function which is currently inadequate due to a lack of resources.

The operations director has been adamant about positioning the company as a preventative maintenance services provider and trusting his instincts that generic preventative maintenance is a growing market and there are not many companies which can provide such a service (Interview). The other competitors which operate on the other plant areas within Majuba power station have similar generic maintenance capabilities on the electrical, mechanical and control and instrumentation technical disciplines. These companies have also created strong relationships and reputation with the Majuba power station management. The value the company provides currently is its knowledge and experience on the ash and coal plant to provide a quick breakdown maintenance service. The company also provides a combination of electrical, mechanical and control and instrumentation services and this has removed the integration problems that occurred within Eskom among the three technical disciplines. The company has chosen a low cost strategy to provide its maintenance services as depicted by Figure 3.9.

Figure 3.9: Labour cost comparison between Eskom and AMS



Source: Interviews with Eskom procurement department to determine the current costs of the various job categories and the AMS payroll financial records (2005).

- Job Category 1: Administration
- Job Category 2: Directors
- Job Category 3: Cleaners
- Job Category 4: Semi – skilled workers
- Job Category 5: Operators
- Job Category 6: Class B Artisans
- Job Category 7: Artisans

Figure 3.9 indicates that AMS is 21.6% cheaper than Eskom for labour costs, even though the directors and administration costs have been excluded from Eskom. The only differentiated service that AMS currently offers is the laser alignment of pumps, motors and gearboxes which the other competitors are unable to perform. The company does not set long- term objectives, since the firm operates within the maintenance functional levels and the daily approach to business.

### ***3.10 Leadership***

The supervisors who form part of the middle management team within the organisation are involved in the day to day activities of the ash and coal plant mechanical, electrical and control and instrumentation maintenance functions. Decision - making is centralised with the operations director making the majority of the decisions with regard to standby rosters, resource planning for planned and breakdown maintenance, financial management, human resource management, safe work procedures and quality control plans required for each plant related job, disciplining of employees and procedures on meeting non - conformance reports. .

The operations director currently has a problem with trust and also feels that his staff does not have enough time to complete all activities. The rest of the organisation needs to be instructed on most decisions, the artisans and semi - skilled workers continue with their tasks unless instructed to make changes. The director also feels that he needs to drive all activities. Decision - making is a long process with the whole organisation relying on one or two leaders to make the necessary decisions. None of the directors and employees is familiar with the company mission, vision and strategy of the firm. All the employees who were interviewed feel that the company's mission and vision is to keep Majuba power station's ash and coal plant operational. Some of the directors interviewed feel that AMS is not ready for growth into other industries and power stations.

Planning of work is executed on a daily basis. Supervisors do not take control over the quality and safety of their respective plant areas. All of these functions are normally controlled by the operations director. The operations director is the only one that knows how the quality system works. The safety and quality control systems are just paper exercises to keep the client and legal authorities happy. The operations director is a high achiever and a logical thinker and has been characterised by many others within the company as a strong leader, whereas the coal supervisor is hard working and seeks more operating procedures. On the other hand the planning manager, projects manager and ash plant supervisor all have short - term focus. The C&I supervisor has a strong leadership style as he is innovative and always looking to improve on the activities that



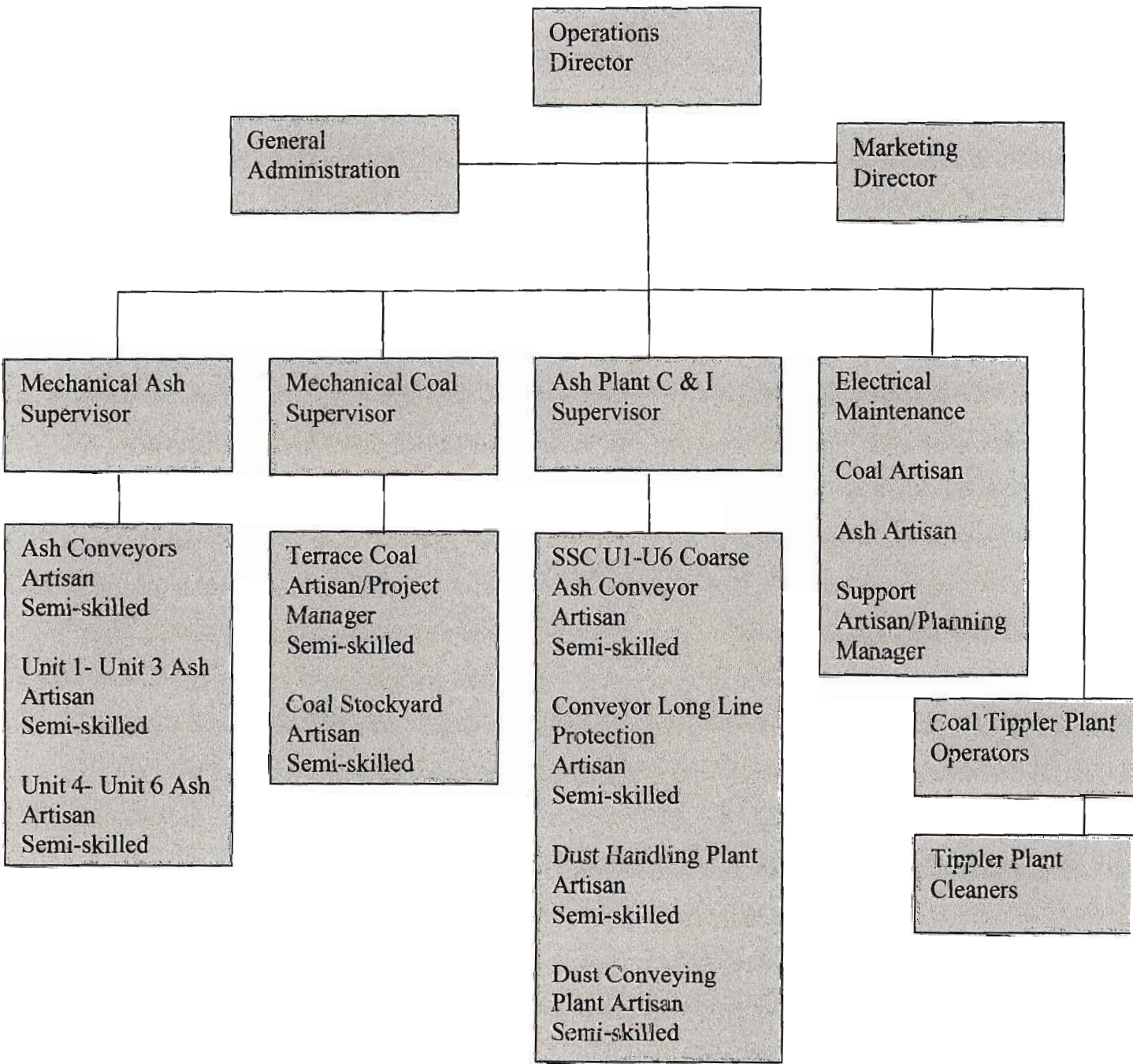
he performs. The operations director's propensity to risk taking is low. His leadership style is more driven towards cost saving and watching over the functioning of the company. AMS members and employees respect an authoritarian leadership style and prefer not to be responsible for their actions and want to be directed for all functions and lack the ability to take on leadership roles. The rest of the directors prefer not to take risks and together with the employees, seek the security of knowing well in advance that the contract will be renewed. The marketing director has excellent communication skills and is characterised as a high achiever and an analytical person.

### ***3.11 Structure***

The company directors have been continuously changing the organisational structure to fit the demand for breakdown maintenance. The company has more semi-skilled employees which creates more delegation of job functions and a lack of flexibility. The employees feel that the supervisor's duties need to be defined properly. The authority and responsibilities of the workers are changing continuously as they adapt to change of the company's structures.

Middle management does not coordinate and monitor the personnel working on the plant to ensure the breakdowns and preventative maintenance is performed according to the required quality and safety standards. None of the organisational members are familiar with the policies and procedures of the quality and safety management systems. Some of the employees are under the misconception that the directors are on the same level as them. The artisans have also not taken ownership of their respective plants. The current structures are developed to fix plant breakdowns and do not cater for a preventative maintenance approach with the necessary quality and safety systems required by the customer.

Figure 3.9 Amalahle Maintenance Services Organogram



Source: Amalahle organogram (2005)

### ***3.12 Culture***

The current strategy of the organizational members and employees is to keep the ash and coal plant operational with as minimum call outs. The employees and members also strive to keep the customer happy by performing the maintenance work appearing in the customer's production plan. AMS reacts to plant problems and does not have a proactive attitude to maintenance. The work is prioritised according to the ones that can damage the company's image. The organisation believes that preventative maintenance is secondary to reactive maintenance. Due to the lack of planning and controls to ensure preventative maintenance is implemented, all the organisation members maintain their current beliefs. The artisans are hard working and resist paperwork. The directors created a position for a planner so that the paperwork could be handled to ensure the turnaround time is being achieved. The employees do not take responsibility and accountability for their plant areas and prefer to be directed for each job performed on the plant.

There is currently no respect for some of the directors. The situation has occurred because the directors work on the plant. The employees have a great sense of security by making known that they need to feel secure that the contract will be renewed. The employees are also seeking better opportunities that provide security and benefits. The security the employees seek is a permanent job and not the current contract position. The organisation has a hardworking culture all round, but a very reactive rather than proactive attitude to plant problems.

### ***3.13 Controls***

The key performance indicators (KPI) seems to be a paperwork exercise for AMS as most of the members do not understand the importance of the KPI and how it can help the company control the performance. The KPI at AMS is only looked at once a year when the performance bonus needs to be calculated. The breakdown maintenance work is planned at the production meeting. The production plan of Eskom includes much breakdown work or defects that need to be fixed. AMS utilises the production plan as its

only measure to determine if the work has been completed or not. None of the organisational members understand fully how the safety system is meant to work. The operations director sees this as a paperwork exercise to satisfy the customer and meet the minimum legal requirements. On the other hand, the quality management system is well understood by the operations director, since the system is centrally controlled by the director. No other member or employee understands how the quality filing system operates. The work flow of a quality control plan (QCP) is as follows: the artisan collects a QCP from the quality file; the supervisor must inspect the hold points and when the job is complete, and the QCP signed off and kept in a register. The quality controller monitors the morning meetings for re - occurrence of any QCP processed job. The artisans do not understand the importance of quality. The respective artisans perform the plant jobs first and thereafter fill in the necessary paperwork or QCP's. The director sees the quality plan as motivation for the performance bonus. The company does not set for it long - and short - term objectives due the directors, employees and supervisors concentrating on the day to day functions. The policies and procedures are lacking in AMS since it relies on a daily approach to maintenance. The employees are given a performance and gain share bonus.

### ***3.14 Summary***

- The new BEE codes have changed and now include sustainable social responsibility, training and gender equity.
- Condition monitoring technology will affect the current time based maintenance.
- Global warming and changing weather patterns are forcing governments to implement environmental regulations in regard to businesses.
- The international companies are penetrating the South African economy created by government's expansion programme.
- The contract maintenance services industry is going through a growth phase created by the return to service of the three mothballed power stations and existing power stations are looking at increasing productivity by contracting maintenance functions to employees. Imperfect market conditions exist with

Roshcon which is a subsidiary of Eskom. Roshcon has been awarded the maintenance contracts at the three mothballed stations and at Matla, Arnot and Tutuka. AMS relies totally on the Majuba power station for the income generated. The ash plant supervisor indicates a huge opportunity for AMS to enter the conveyor belt splicing market. The country is faced with skills shortages with qualified and experienced artisans and technicians. The core competencies of AMS are to provide quick breakdown maintenance due to its years of experience, technical expertise and knowledge on the ash and coal plant.

- The company follows a breakdown instead of a preventative maintenance strategy. The company follows a low cost business level strategy and has targeted industrial companies requiring preventative maintenance on the ash and coal conveying plants. The company has a centralised decision - making, evolutionary leadership style and is reluctant to take risks.
- The structure is continuously being changed to meet the demands of breakdown maintenance. The breakdown approach to maintenance has become a norm. The key performance indicator is utilised as a paperwork exercise for the company's performance bonus.

The next chapter evaluates the strategic analysis, strategic choice and strategic implementation presented in the current chapter.

**CHAPTER 4: ANALYSIS OF DATA**

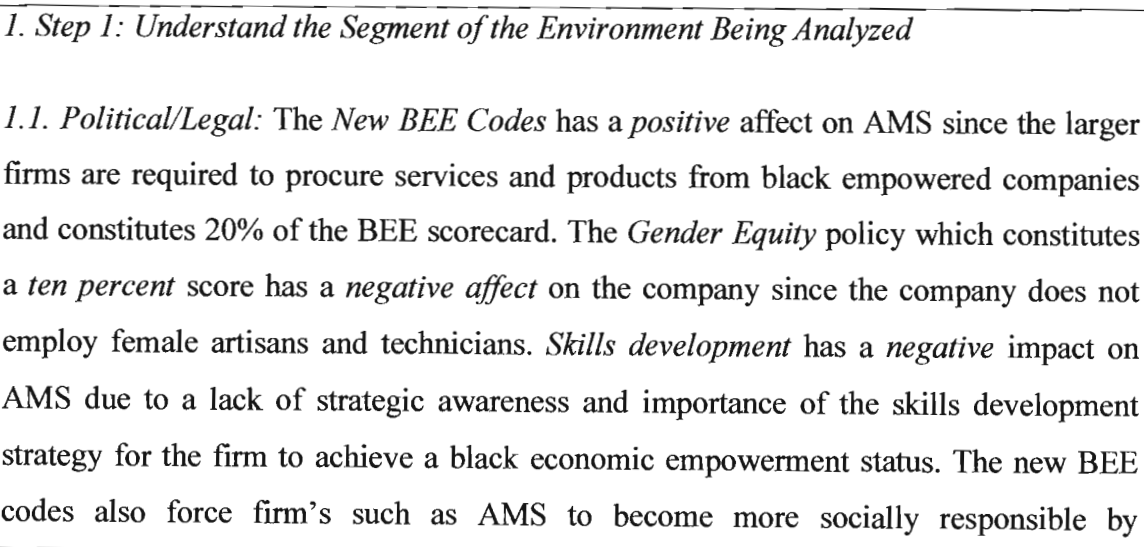
***4.1 Introduction***

This chapter analyses the case study presented in Chapter Three against the framework developed in Chapter Two. The aim of the strategic analysis is to determine the possible strategic gaps between the strategic choices made by the firm and the current strategic analysis faced by the firm. The aim is to also determine the strategic gaps between the strategic choices and the implementation process. The analysis will be performed by evaluating the strategic analysis, strategic choice and strategic implementation of Chapter Three. The analysis will determine the strategic options by performing a SWOT analyses on the strategic analysis in Chapter Three. The strategic choices together with the strategic options are evaluated to determine the most appropriate strategic choices the company must make.

***4.2. STEEP Analysis***

The limitations of the STEEP analysis technique are poor interpretation, inaccuracy and uncertainty, short - term orientation, and misperceptions.

Figure 4.1: STEEP Analysis



developing black staff, enterprises and rural communities and also by providing good employee benefits. The labour laws require firms such as AMS to adhere to the Occupational Health and Safety Act of South Africa which has been defined in Chapter Two. This affects AMS negatively, since the safety management system does not meet the legal requirements of appointments, safety officers and safety representatives.

*1.2. Economic:* The growth of the South African economy has had a positive effect on AMS, especially with the increase in demand for electricity which has enabled Eskom to commence with the expansion of the current power generation capacity. The return to service of the previously decommissioned power stations and the construction of the new power stations will create a demand for maintenance services. The current unemployment rates, lack of technical skills and the high Gini Coefficient of 65 affect the current expansion of South African utilities. This also creates problems for AMS to retain and attract suitably qualified technicians and artisans due to a high demand for technical personnel created by the expansion programme. The international companies entering the South African market for the construction of new power stations impacts the firm positively due to 30% equity participation of black empowered firms.

*1.3. Technology:* has a negative impact on AMS, since process control manufacturers are developing online condition monitoring equipment with their process systems. Equipment manufacturers will continue to develop more reliable plant/equipment and machinery. Online diagnostic systems will help with root cause analysis. Software manufacturers are producing software that is capable of integrating all functions of businesses which helps employees and managers with decision - making and attaining efficiency and effectiveness. Although the new online condition monitoring technologies are at the birth phase within power generation, this technology poses a serious threat to AMS, once the predictive maintenance techniques have been adopted by Eskom. The effects of the new technology would be a reduction in the amount of time based and breakdown maintenance which AMS currently provides. There is a growing demand for proper maintenance techniques as the assets reach their 30 year life cycles. The customers have been placing much emphasis on reducing maintenance costs and ensuring reliability of equipment to enhance productivity.



*1.4. Environmental:* Global warming and changes in weather patterns have forced governments all over the world to formulate and implement stringent environmental laws which require companies to reduce amount the of air, water, and land pollution and thereby preserving the environment. These environmental laws will continue to be modified to ensure companies adhere to these laws. This will affect AMS negatively due to lack of knowledge and an absence of management systems which adhere to the required environmental laws. Since AMS maintains plant processes which cause environmental damage, the ash and coal plants, the firm would be required by the customer to meet the legal requirements. The firm would be required to increase its resource capabilities with respect to environmental management and implementation.

*1.5. Social:* The South African government has identified the small to medium enterprises as the drivers for growth, poverty alleviation and reduction in unemployment. The government has introduced many incentive schemes to promote and assist small to medium enterprises to achieve growth, sustainability and competitiveness. The BEE codes have been aligned with the social categories to ensure skills development in line with transformation, enterprise development, gender equity, community developments, and employee benefits. Table 1 on the Projected changes in the size of the labour force, 2000-2015 indicates the importance of AIDS management between 2005 and 2015, as the labour force will continue to be reduced. The economy's growth rate will be offset by the social expenditure on AIDS healthcare expenditure. This could also become a future expense for companies as productivity would be reduced and an increase in skills development, and healthcare benefits for staff. Employers will be required to provide compulsory healthcare to staff.

## *2. Step 2: Understand the Interrelationships between trends*

*2.1.* The expansion programme within Eskom Power Generation would require the large firms tendering for theses contracts to procure services and products from black economic empowered companies. The construction of the new gas fired powers stations requires the independent power producers to utilise 33% black empowered firms for



equity investments.

2.2. The BEE codes include the interrelationships between the economic sector, the social, political and legal and environmental sectors. This is due to the economic opportunities created by governments expansion programme targeted by firms which score 65% and above on the BEE scorecard. This can be achieved if the social categories have been met by ensuring black economic empowerment, gender equity, black managers in executive positions, enterprise development of black empowered companies, rural and community development and skills development of black artisans, technicians and professionals. The AIDS epidemic will also contribute to the social responsibilities of firms. The companies will be required to ensure proper AIDS management is implemented to ensure employees understand the risks, eradicate discrimination among organisation members, and provision of healthcare benefits by employers for all staff. The labour force reduction indicated by Table 1 would decrease productivity and increase government's expenditure on AIDS healthcare. The larger numbers of unskilled workers in South Africa will contribute to the unemployment and expenditure of firms on skills development. Therefore the South African government has included skills development as the criterion for black economic empowerment status.

2.3. Technology developments have created new techniques for performing industrial plant maintenance. Predictive and proactive maintenance techniques have been developed to reduce maintenance costs and increase the reliability, efficiency and life cycles of machinery. This affects the time based maintenance required since maintenance tasks will be performed when the need arises which is determined by the online condition monitoring equipment. The predictive maintenance technology is in its infancy phase and requires huge switching costs by the customer. Since the power stations are nearing their third decade life cycle there has been increased expenditure on breakdown maintenance. The customers would therefore be forced to switch to predictive maintenance techniques to increase the life cycle and reliability of the machinery and thereby enhancing productivity.

### *3. Step 3: Relate Trends to Issues*

3.1. The expansion of Eskom's power generation capacity would attract many capable competitors within the generic maintenance services industry. This would occur especially at Camden, Grootvlei, Komati and the new power stations due to Eskom outsourcing the maintenance at these power stations.

3.3. New BEE codes of practice affect the company, especially gender equity employment figures, skills development strategy, enterprise and social development. The company does not adhere to the new requirements of the BEE codes of practice.

3.4. Technology developments that will reduce the importance of time based maintenance and more emphasis placed on just in time maintenance systems by predicting failures and increasing the time period between times based maintenance. Technology will continue to reduce costs of the maintenance functions. AMS relies on fixed term contracts to perform breakdown and preventative maintenance. The market related prices are calculated on the number of preventative maintenance job cards and the history of breakdown maintenance. Technology developments with respect to predictive maintenance would reduce the amount of time based and breakdown maintenance required and therefore the contract value.

3.6. Technology developments with respect to condition monitoring techniques would require skilled personnel to perform maintenance tasks.

3.7. The current government expansion is faced with technical skills shortages would impact AMS due to the firm's inability to attract and retain highly qualified artisans and technicians. The high demand and low supply for skilled technical personnel would lead to high labour costs.

3.8. AMS would be required to adhere to the environmental, health and safety laws of the customer.

#### *4. Step 4: Forecast the future direction of Issues*

4.1. Increase in demand for maintenance at the previously mothballed stations and the new power stations will attract new competitors large and small. Many of the large firms would be forced to procure services and products from small to medium black economic empowered companies. The larger firms would compete with each other for construction contracts by meeting the new BEE codes.

4.2. The drivers for black economic empowerment are to reverse the imbalances created by apartheid and reduce unemployment, poverty and inequality. This would continue in the near future to force companies to ensure that transformation of black economic empowerment is achieved.

4.3. Technology driven companies will continue to develop maintenance technologies such as online condition monitoring which predicts plant and equipment failures. The demand for electricity will cause Eskom to invest in these technologies to enhance the life cycle and productivity of power stations.

4.4. Skills shortages in South Africa has been created by the high unskilled labour force, globalisation, and the move of the world's economy to an information age with technological advancements affecting AMS. The construction of new power stations and the return to service of the previously decommissioned stations requires highly skilled engineers, technicians and artisans which will create opportunities for AMS employees to seek more lucrative employment.

4.5. The increase in pollution and global warming has spurred to governments all over the world to implement stringent environmental laws. The South African firms small and large would be required to adhere to these laws.

4.6. The South African Government will continue to provide incentives and assistance to small to medium enterprises in the near future to ensure the unemployment and poverty is alleviated. This is in line with the global trends of a services economy with small to medium enterprises providing these services, high customisation of services and products which can only be provided by smaller firms, continuous price reductions

which the smaller firms can provide.

4.7. The AIDS epidemic will reduce the South African labour force in 2010 by 21%. This will contribute to productivity losses by firms, an increase in healthcare by government, and an increase in the technical skills gap. .

#### *5. Step 5: Derive Implications*

The increase in demand for generic plant maintenance services at Camden, Grootvlei, Komati and the new power stations would attract new competitors to the maintenance services industry. This creates a threat to AMS since the firm lacks the financial resources to compete with the larger firms. The competitors can tender for AMS contracts at the Majuba power station by leveraging its resources from Camden, Grootvlei and Komati power stations. The new BEE codes require AMS to improve the gender equity within the organisation; formulate and implement a skills development strategy in line with SETA and ensure social responsibility. Technical skills shortages will cause AMS to lose some of its employees to competitors and its customers. Government will continue to improve the BEE codes to ensure that transition to black economic empowerment is achieved. The larger firms would be forced to procure services from black empowered small to medium enterprises such as AMS.

### **4.3. Industry Analysis**

Rating of the Five Forces of the Industrial Maintenance Services Industry (5=STRONG, 1=WEAK)

#### **4.3.1 Threat of New Entrants: Rating = 5**

- AMS provides a generic maintenance service which can be easily performed by the Eskom employees and other maintenance contractors at the Majuba power station
- The specialised tools, capital spares and equipment are provided by the customer. AMS is paid primarily for a labour service.

- The Majuba power station can switch to any capable contractor who provides the service at a lower price.
- Some of the other power stations are starting to contract some of the maintenance functions to their employees to increase productivity and decrease costs.
- Camden, Matla and Arnot have contracted the coal and ash plant maintenance services to Roshcon which is a subsidiary to Eskom.
- The barriers to entrance are extremely low created by the generic maintenance services.

#### 4.3.2 Threat of Substitute products: **Rating = 3**

- Technology developments within the maintenance industry have led to online condition monitoring equipment which can predict and prevent equipment failures. The current switching costs are high, which has persuaded some of the power stations to utilise current maintenance techniques.
- Online condition monitoring could be the way forward in the future for the maintenance service industry. The drivers for switching could be the fact that the plants are nearing their life cycles, and to extend the current life cycles.

#### 4.3.3 Intensity of rivalry among competitors: **Rating = 5**

- The generic contract maintenance has gone through a growth phase created by the demand for electricity and the return to service of the three mothballed power stations Camden, Grootvlei and Komati. These maintenance contracts on the entire ash and coal plants have been contracted to Roshcon which is a subsidiary of Eskom. Roshcon is achieving growth due to *imperfect market conditions*. Roshcon also has the following resource advantages over competitors: capital equipment to move ash to the dumps, and specialist on coal reclaiming.
- Tutuka Power Station has contracted the ash plant maintenance to employees. The rivalry between the small companies created by contracting to employees will increase in the near future.
- The maintenance industry is also made up of specialised conveyor belt hot and cold splicing and pulley lagging. This industry has also gone through a growth phase due to the current life cycle of the power stations and the conveyor belts.

Majuba is situated +/- 200km away from Witbank where there is a high concentration of power stations and coal mines which utilise the specialised services. Therefore many of the conveyor belt splicing contractors compete in these areas. The splicing service is an emergency service and requires that the firms respond almost immediately. The Majuba power station has experienced reliability and high transport costs problems with these contractors due to geographical location.

- AMS also competes with some of the contractors at Majuba who were also Eskom employees. Most of these companies have similar electrical, mechanical, and control and instrumentation maintenance capabilities.
- The opportunities at Majuba Power Station are the C&I Coal plant maintenance, coal and ash plant cleaning contracts and the operating of the ash and coal plants. The small to medium enterprises operating within Majuba have also shown interest in these contracts.

#### 4.3.4 Bargaining Power of Buyers: **Rating = 5**

- AMS relies on Majuba for its income, therefore making Eskom powerful in negotiations. The switching cost for Majuba is low because the firm provides all the capital spares and tools to AMS.
- The buyers of Majuba power station concentrate on the price when evaluating contract tenders. They are not concerned on the quality of the service, rather on the actual prices tendered.

#### 4.3.5 Bargaining Power of Suppliers: **Rating = 0**

- AMS is not affected by suppliers as it relies on the customer to provide the firm with all the spares, consumables and equipment.

#### 4.3.6 Conclusion

Competitive forces are strong, and the profitability of the generic maintenance industry is low due to imperfect market conditions and the growth in maintenance services created by Eskom employees and Roshcon. Many of the power stations have not contracted the generic maintenance service and have indicated a reluctance to contract the services. Research has shown an increase in demand for breakdown maintenance such as hot and cold conveyor belt splicing.

**4.4 Functional capability and resource analysis**

The limitations and weaknesses of the RBV theory is that it has little empirical support.

Figure 4.2: Functional Capability and Resource Analysis

1. Step 1: Determine the firm’s critical success factors

- *Macro and Industry:* The firm must adhere to the new BEE codes of black ownership, black management, gender equity, skills development of artisans and technicians according to SETA, and social development. The firm must also adhere to the environmental and occupational health and safety laws of South Africa. There has been an increase in demand for generic maintenance at Camden, Grootvlei and Komati power stations on the ash and coal plant which has been awarded to Roshcon. The company is a subsidiary of Eskom and receives preference over other companies for providing the maintenance services. The expansion of Eskom’s generation capacity will affect the current labour resources of AMS due to the technical skills shortages in South Africa. The power generation supplier requirements mean that AMS must formulate and implement a quality maintenance management system to ensure no rework on the maintenance tasks performed on the coal and ash plant. AMS is also required to have a safety management system which is implemented throughout the organisation to ensure a safe working environment and the health of the employees at work. The company is required to provide a preventative and breakdown maintenance service on the ash and coal plant and ensure a 100% availability of the plant. AMS is also required to provide continuous technical, process, quality and safety training on all related plant areas. Customers are more sensitive towards price and AMS must therefore provide a low cost maintenance service.
- *Competitive position:* The company currently provides a generic mechanical, electrical and C&I maintenance service (preventative and breakdown), together with the tippler plant operating and cleaning on the ash and coal plant. The firm’s relationship and reputation with the Majuba power station supervisors and

managers are excellent which gives the company its current competitive advantage. Other services include laser alignment. AMS requires a new set of critical success factors due to the increased demand for contract maintenance. The company is required to reposition itself now that the additional maintenance services on the ash and coal plant have been awarded to Roshcon.

- *Firm Specific:* all employees require process knowledge of the entire ash and coal plant, systems and equipment technical knowledge according to the mechanical, electrical control and instrumentation skills, operating and cleaning. The firm is also required to perform a failure and criticality analysis on all equipment and plant according to the reliability centered maintenance programme. A root – cause analysis of all plant and equipment failures must be performed which will lead to extending the life cycle of the ash and coal plant. The quality control plans must be in line to ensure no rework and maintenance induced failures occur (internet 8). In order for AMS to ensure availability of the plant, the firm must perform preventative, predictive and proactive maintenance on the ash and coal plant. It is imperative for AMS to have the competencies to prevent equipment failures. Low voltage and high voltage authorisation courses are necessary to authorise AMS employees to isolate plant, machinery and equipment enabling a safe working environment. Quality Control plan and safe work procedures for work performed on the plant to ensure safety and quality. The firm is also required to plan critical breakdown and preventative maintenance tasks with Eskom's production team. It is important for the firm to plan preventative maintenance work in advance to ensure proper resource planning. Since AMS utilises a large contingent of semi - skilled workers the firm is required to provide continuous training on the plant process, technical training on the various systems and subsystems within the mechanical, electrical and control and instrumentation disciplines.

## 2. Step 2: Identify the Firm's Resources

- **Tangible:** These are the financial resources; company vehicles for site and standby purposes; computerized clock cards for employee time keeping; Quick



books financial management system, human resource management system; and the laser alignment machine; planning and maintenance management system; artisans (some of these artisans are not qualified); semi-skilled employees (AMS relies more on the semi-skilled employees as this constitutes the largest contingency of the organization); operators and cleaners (Tippler plant), supervisors; operations director; director (general manager); and tools and equipment. The quality and safety management systems have not been implemented throughout the organisation due to a lack of knowledge. The firm does not adhere to the customer's environmental policies. The quality management system is controlled centrally by the operations director. The firm utilizes the daily production plan to perform breakdown and preventative maintenance tasks. This is the only control point to ensure the work is performed. The AMS planner hands over the list of defects to the Eskom schedulers once the work has been completed. The supervisors are involved in the day to day activities of the maintenance tasks due to the large number of semi - skilled workers. The supervisors do not have time for the quality and safety audits that are required to be performed on their respective plants.

- Shared resources: these are resources provided by Eskom, specialised tools and equipment, spares which are run by the Eskom supervisor who draws out spares from the stores or initiates a purchase request which goes through the Eskom procurement system; SAP system (Eskom Scheduler) for capturing plant defects; RCM process which is also run by Eskom's maintenance support team who have no experience on the plant; Eskom outside plant operators provide information on the defects of the coal and ash plant which AMS is required to repair. The operators do not provide the correct information due to a lack of technical knowledge on the plant equipment and the AMS maintenance personnel are called out for operating tasks. The root cause analysis is a task performed by the Eskom engineering department. The root cause analysis lacks urgency because many of the engineers are busy with other projects. The cleaning contractors lack the required process and technical knowledge to perform cleaning tasks on critical equipment. Due to the nature of the ash and coal plant cleaning is an important function.

- Intangible: These are: good relationship and reputation with Majuba Power station management; the directors, supervisors and a few employees have acquired years of experience on the coal and ash plant (process and technical knowledge); good financial management practices; the ability of the firm to provide a quick breakdown maintenance service to ensure the plant is available.

### 3. Step 3: Evaluate the firm's Resources

- Valuable/Rare/Inimitability/Organizational (VRIO): The only resources that have passed the VRIO test are the organisation's relationship and reputation with management and its years of experience within the maintenance industry and also the ability of the firm to provide a quick breakdown maintenance service.

### 4. Step 4: Identify Gaps between the Firm's Resources and Critical Success Factors

- There has been an increase in demand for generic maintenance services. Unfortunately, AMS cannot target this market due to imperfect market conditions and the high barriers to entry created by the performance guarantees of R4 million.
- The firm is lacking in the following categories of the BEE codes of practice: skills development, gender equity, social development, enterprise development, black management executives and employment equity.
- The safety and environment management systems have not been formulated and implemented properly throughout the company due to a lack of knowledge and awareness of its importance.
- The quality management system is controlled centrally by the operations director and none of the other directors and employees understands the purpose of quality and how it functions within the company.
- The company currently provides a breakdown approach to maintenance instead of a preventative approach.
- AMS lacks controls to ensure minimum re-work of maintenance tasks, there is also a lack of planning of preventative maintenance jobs over a longer period to

ensure optimum usage of resources. The firm adopts a daily approach to maintenance which is reactive instead of being proactive. The company utilises the daily production meeting as a control point to determine if the work is complete or not. This therefore encourages the firm to follow a breakdown or reactive approach to maintenance.

- Defects are captured into the SAP system once the work is complete, which creates problems for the system to determine the correct turnaround time for correcting the defects. This leads to a lack of urgency concerning the work performed on the plant by AMS.
- The firm experiences various integration problems with the various Eskom departments. The Eskom operators do not follow proper operating procedures and call out the maintenance staff for operating tasks as well. The Eskom schedulers are responsible for the RCM process, although they lack plant technical and process knowledge. The cleaning contractors working on the ash and coal plant lack the required plant process knowledge to ensure critical plant equipment is cleaned. Spares are controlled by budgets and are not linked to the RCM process to ensure a reduction in failures and spares costs.. There is also no quality process that is implemented within the spares procurement system.
- The company relies on a large contingent of semi - skilled labour that learns by experience over extended periods of time. This therefore reduces the flexibility of the organisation as the skilled employees need to continuously participate in the maintenance tasks performed by the semi - skilled workers. This reduces the speed of response to plant problems and therefore restricts growth of the company.
- Supervisors are also involved in the day to day maintenance tasks due to the high number of semi - skilled workers. The supervisors do not have the time to perform safety and quality audits on their plants.
- The employees lack the required process and technical knowledge which is a primary requirement to perform breakdown and preventative maintenance tasks.
- In order for AMS to ensure the preventative maintenance programme is optimized, the firm is required to perform a root cause analysis on all critical plant failures. Once the root causes of failures are detected the preventative

maintenance job card must be modified to prevent further failures. The root cause analysis task is performed by the Eskom engineering department but lacks urgency due to other important projects.

- The firm fails to provide sufficient process, technical, quality and safety training to the staff.

#### 5. Step 5: Diagnose Current Strategy

- AMS has been positioned as a preventative maintenance solutions provider on material handling plants by the directors due to instincts. The directors have not performed an external environmental analysis to determine the current situation faced by the firm within the maintenance services industry. Research has shown that AMS is unable to target the growth in the generic contract maintenance. This is due to the imperfect market conditions created by Roshcon, a subsidiary of Eskom. The other power stations have also contracted some of the maintenance tasks on the coal and ash plant to employees. The firm has chosen a market development strategy by targeting other power stations and also utilising the services currently offered. The firm has been able to achieve growth within the Majuba power station by providing an entire range of maintenance services on the ash and coal plant.
- The firm has positioned itself in the market as a preventative maintenance services provider, but its core competence takes the form of quick and efficient breakdown maintenance. The quality and safety management systems are not formulated and implemented to ensure minimum rework and a safe working environment.
- AMS has been able to achieve growth at the Majuba power station by taking advantage of its relationship with the management team.
- The current strategies of providing a low cost maintenance service by relying on semi - skilled workers is not aligned to the differentiated strategy of the firm to provide a preventative maintenance service on the ash and coal plant. The semi - skilled workers are not familiar with the plant process, or the technical knowledge of the ash and coal plant, plant safety and quality requirements. The

semi - skilled workers and most of the artisans, rely on the supervisors and directors to perform most of the fault finding tasks on plant problem areas. There are many integration problems in ensuring the provision of the preventative maintenance services with the various operating and engineering departments.

- The current core competencies of the firm are insufficient to ensure a sustainable competitive advantage, growth and renewal of the existing contracts. Other competitors can tender for these contracts due to the experience gained on the return to service power stations and some of the existing stations.
- The customers are price sensitive, and due to the low barriers to entry into the generic maintenance services industry other small to medium enterprises can tender at much lower prices. The larger companies such as Roshcon can leverage the current resources to achieve a competitive advantage at the Majuba power station.
- The firm has done well to adhere to black economic empowerment.

#### 6. Step 6: Formulate Rational Future Strategies

AMS cannot rely on the current generic maintenance services and must diversify into other specialist breakdown maintenance services in order to ensure growth and a competitive advantage. The firm must continue with a low cost strategy of concentrating on semi - skilled workers by developing a customised training management system which ensures the semi skilled workers together with the artisans are trained on the plant process, and on the mechanical, electrical, control and instrumentation maintenance disciplines. The company must move from a breakdown maintenance approach at Majuba to a preventative maintenance approach. The safety and quality management system must be implemented throughout the company to ensure no re - work of maintenance tasks and a safe working environment.

4.5 SWOT Analysis

The SWOT analysis will be made up of three parts, the identification of strengths, weaknesses, opportunities and threats, the second being the TOWS Matrix, and the third being the interaction matrix.

4.5.1. Identification of Strengths, Weaknesses, Opportunities and Threats: the various categories data were ranked according to the data presented in Chapter Three.

Figure 4.3: SWOT Identification

Strengths	Weaknesses
<p>1. AMS is currently a 51% black women owned organization with a 62% affirmative action ratios.</p> <p>2. The supervisors, directors and artisans have gained a vast amount of experience and technical knowledge on the ash and coal plant maintenance. The firm is able to provide a quick breakdown maintenance service.</p> <p>3. The firm provides a combined mechanical, electrical and C&amp;I maintenance service on the Ash and Coal plant, operating and cleaning services on the Tippler plant. This creates speed of response to plant problems and an integrated approach to maintenance.</p> <p>4. The firm utilises an automated financial</p>	<p>1. AMS provides a generic maintenance service which is easily imitated by competitors.</p> <p>2. A mismatch exists between the firm's strengths of providing a quick breakdown maintenance service and the strategy chosen of providing a preventative maintenance service. The Ash plant breakdown maintenance costs are higher than the preventative maintenance costs and the maintenance budget has been exceeded in the year 2004.</p> <p>3. The firm has been unable to achieve the strategic objectives of ensuring a safe and quality based maintenance service through the implementation of proper quality and safety management systems. The employees, directors and supervisors lack the knowledge with</p>

management system, human resource management system and a specialist laser alignment service on pumps and motors.

5. The employees are provided with vehicles for on - site and standby traveling.

Performance bonus and gain share bonus offered to employees.

6. The directors and employees have gained a good reputation and relationship with Majuba management. The entire Majuba power station organisation has accepted AMS as being a part of the Eskom group.

7. The firm has achieved a first mover advantage within Majuba power station on the ash and coal conveying plants by providing all the generic maintenance (mechanical, electrical and control and instrumentation) tasks.

respect to quality and safety.

4. The firm has achieved 40% on the new BEE codes in the equity ownership, management and social development categories. AMS currently lacks in the employment equity, skills development, and preferential procurement and enterprise development categories. The firm requires a score of 65%.

5. Poor controls are in place to ensure the effectiveness of the preventative maintenance. Work is planned according to Eskom's daily production plan which contributes to a breakdown instead of a preventative maintenance. The planning function is performed to capture the defects once the work is done. This creates a lack of urgency due to the work being performed at the employees own pace. The planning of preventative maintenance tasks is a redundant function and does not add value to the customer.

6. The supervisory level which forms part of the middle management lacks the necessary knowledge to coordinate the safety and quality audit tasks required on their respective plants.

7. A lack of integration exists among the operating, engineering and maintenance departments which contribute to a breakdown approach to maintenance. The root cause analysis tasks are performed by the engineering

departments which lacks the required urgency.

8. The cultural norm within AMS employees and members is a reactive or breakdown approach to maintenance.

9. The current structure of the firm is not linked to the strategies chosen to provide a preventative maintenance service which meets the quality and safety standards required by the customer. The firm has been structured to perform quick breakdown maintenance.

10. The low cost strategy of employing semi skilled workers to perform maintenance tasks reduces flexibility within AMS and increases the amount of coordination. Reliance on semi - skilled workers which creates problems for decision - making and creates an overload for the skilled employees. Supervisors still perform the work on the plant to assist the semi-skilled workers due to the lack of knowledge. Their knowledge base is created over a period of time. The large amount of semi - skilled workers reduces the flexibility to enable growth, creates a slow response to prevent failures, lack of innovative capability to determine the root cause of failures.

11. Decision - making is centralised which promotes a lack of responsibility and accountability among employees.

12. Lack of a proper plant process and technical



	<p>training system, and also quality and safety training to ensure the competence of the semi - skilled workers, artisans and supervisors and thereby increasing the amount of reliance on the experienced artisans, supervisors and directors.</p>
<p><b>Opportunities</b></p> <ol style="list-style-type: none"> <li>1. The new Black Economic Empowerment (BEE) codes require firms to procure products and services from black empowered companies. The larger firms tendering for the expansion contracts must procure 30% of products and services from BEE firms. The preferential procurement provides opportunities for AMS to provide the current services to the larger firms since the company is black empowered.</li> <li>2. The return to service of the previously mothballed power stations such as Camden, Grootvlei and Komati provides opportunities for AMS.</li> <li>3. Governments plan to stop the privatisation of Eskom creates opportunities for small to medium black empowered companies such as AMS, since Eskom requires the larger companies to procure the services from black owned organisations.</li> <li>4. Eskom's expansion project within Power Generation would require construction, project management, and engineering and</li> </ol>	<p><b>Threats</b></p> <ol style="list-style-type: none"> <li>1. AMS relies totally on the Majuba power station for income. The generic maintenance has a low switching cost for the customer. The generic maintenance service is highly imitated by competitors due to the low barriers of entrance. This is created by the specialist tools provided by Eskom. Other small to medium enterprises and larger firms can tender for these contracts at lower prices and utilize AMS employees.</li> <li>2. Substitute products such as online condition monitoring can predict equipment failures and reduce the amount of time based and breakdown maintenance. This will affect AMS business in the near future if the power stations adopt these new maintenance techniques.</li> <li>3. The rivalry among competitors such as Roshcon, AMS, and other small to medium enterprises would increase in the near future due to growth in contract maintenance services industry. AMS has been unable to target the growth due to imperfect market conditions. Roshcon and other small to medium enterprises would build up competencies within the</li> </ol>

maintenance services companies. Eskom plans to spend an estimated value of R165 billion on the expansion projects.

5. The current low interest rates and inflation, increase in government spending on infrastructure, growth rate of 4.3% provides a favourable position for AMS to invest in new products and achieve growth.

6. The South African government has targeted small to medium enterprises as drivers for growth and poverty alleviation and offers many incentives. The government also included preferential procurement, enterprise development, skills development and social development into the BEE codes to ensure an equitable economy.

7. AMS is a black women owned organisation and has preferential procurement incentives according to Eskom's procurement policies.

8. Opportunity exists for AMS to diversify into predictive maintenance techniques such as condition monitoring of plant equipment and machinery. AMS currently lacks the highly skilled engineers who are required for the above tasks due the reliance of the company on semi skilled workers.

9. AMS can target some of the independent power producers to offer its current laser alignment services. This opportunity exists in

maintenance services industry whilst being protected by preferential procurement. The company will then be able to tender for AMS contract in the near future by leveraging its resources from the existing contracts at the return to service stations, thereby achieving cost leadership.

4. The customers seek low cost maintenance services and a highly differentiated quality, safety and environmental management system. The customer requires the suppliers of maintenance services to have suitably qualified and experienced artisans and technicians on the various disciplines to perform maintenance tasks on the plant.

5. The Eskom buyers have indicated a cost advantage to utilise the services of Eskom subsidiaries.

6. Customers measure contract performances on costs, safety performance and work quality (re-work of maintenance tasks).

7. There is a shortage of experienced and qualified artisans in South Africa.

8. Eskom's expansion would create a huge demand for experienced and qualified artisans. AMS artisans would be able to apply for more lucrative job opportunities at the bigger companies. AMS would not be able to match the salaries offered to the employees from the

the near future since these stations are still required to be constructed.

10. The plant resource centre research has indicated opportunities for minor capital work, labour hire, non destructive testing, condition monitoring, and offsite overhauls and repairs. AMS currently lacks the resources for minor capital work, non destructive testing and offsite overhauls and repairs.

11. The Eskom supervisors for the ash and coal plant at Majuba power station have indicated an increase in demand for hot and cold conveyor belt splicing and pulley lagging emergency breakdown services. There is an opportunity for AMS to provide these services due to a lack of suppliers in the region. Most of the suppliers are situated in Witbank, Middelburg and Secunda which are 150 km to 250 km away from the Majuba power station and the other power stations such as Camden and Tutuka power stations. The suppliers charge an estimated R1300 for travelling to site. Splicing is an emergency breakdown task and requires immediate response which AMS could offer due to the geographical location. The location of AMS also creates a traveling cost advantage.

12. There are opportunities for AMS to target the coal plant C&I contract and the cleaning

larger firms as this would increase the cost of the contract and reduce the low cost competitive advantage of the firm.

9. The contract maintenance industry is experiencing a growth phase created by the return to service of the mothballed stations and the new power stations. Some of the existing power stations have commenced contracting the maintenance functions to employees to reduce labour costs and increase productivity. AMS has been unable to target these new maintenance contracts due to the imperfect market conditions. Original equipment manufacturers are experiencing difficulties in penetrating maintenance services market due to the low cost offered by the smaller firms.

10. Technological advancements in maintenance techniques would reduce the amount of time based and breakdown maintenance in the near future.

11. Governments all over the world are implementing stricter environmental laws which firms are required to adhere to. This has been created by the changing weather patterns, global warming and large amounts of pollution.

12. The directors are unaware of the current threats faced by the firm within the contracted maintenance services industry within Eskom Power Generation.

contracts for the ash and coal plant in 2006. The cleaning contract would become a maintenance function.

13. The operating department has numerous problems with high staff turnover and skills level. The department is contemplating on contracting the outside plant operating.

13. The high Gini coefficient of 65 in South Africa creates labour market entrance barriers and adds to the existing crisis of technical skill shortages.

14. South Africa would need to import skilled workers from abroad which would result in the increase of migration of skilled workers.

15. Unemployment is a huge problem in South Africa which has been created by apartheid and low skills level. The unemployment contributes to the high gini coefficient.

16. The government has introduced skills development of previously disadvantaged individuals to ensure skills transfer and equity in South Africa.

17 AMS has not responded to the requirements of gender equity.

18. The AIDS epidemic is becoming a huge problem in South Africa. This would affect the productivity of the South African labour force and increase the government expenditure on healthcare. Government can make it compulsory for companies to subsidize employee healthcare.

4.5.2. TOWS Matrix

Figure 4.4: TOWS Matrix

Internal	Strengths	Weaknesses
	<p>1. Black Women Owned</p> <p>2. The combined experience, knowledge and skills gained by the employees and directors on the maintenance of the ash and coal conveying plants are 100 years.</p> <p>3. Provides a combination of electrical, mechanical, control and instrumentation, Tippler plant operating and cleaning.</p> <p>4. Strong relationships developed between AMS employees and directors which has enhanced the firm's reputation.</p> <p>5. Utilises an automated financial management system, human resource management and a specialist laser alignment service.</p> <p>6. Provides vehicles for</p>	<p>1. Generic maintenance service which is easily imitated.</p> <p>2. The firm has chosen a preventative maintenance approach but still follows breakdown maintenance.</p> <p>3. Poor safety and quality awareness and implementation. Supervisors lack the knowledge to perform safety and quality audits.</p> <p>4. A 40% score on the new BEE codes instead of sixty five percent.</p> <p>5. Poor controls to ensure the effectiveness of the preventative and breakdown maintenance. There is also a lack of strategic controls.</p> <p>6. Integration problems among the operating,</p>

	<p>standby, employee performance and gain share</p> <p>7. First mover advantage at Majuba power station on the ash and coal conveying plants.</p> <p>8. Low cost advantage created through the use of semi - skilled workers.</p>	<p>maintenance and engineering departments of Eskom.</p> <p>7. Cultural norm of a breakdown approach to maintenance.</p> <p>8. Structure is not linked to the preventative maintenance, quality and safety strategies chosen by AMS. Decision - making is centralised</p> <p>9. Low cost strategy of utilising semi - skilled workers reduces flexibility in terms of growth and increases coordination.</p> <p>10. Lack of plant process and technical training for semi - skilled workers and artisans.</p>
<p><b>External Opportunities</b></p> <p>1. Preferential procurement to BEE firms due to the new black economic empowerment codes. The larger firms must procure products and services from black empowered small</p>	<p><b>Possible Strategies</b></p> <p>1. Utilise the reputation, plant technical (electrical, mechanical and C&amp;I) and process knowledge, and current financial, administration and human resource system to match the</p>	<p><b>Possible Strategies</b></p> <p>1. Diversify into specialised breakdown maintenance services such as conveyor belt splicing and pulley lagging to create barriers for entrance into Majuba power station. Build</p>

<p>to medium enterprises.</p> <p>2. Return to service of Camden, Grootvlei and Komati power stations. Roshcon has been awarded the ash and coal plant maintenance contracts.</p> <p>3. Majuba power station currently has problems with its outside plant operating department. Lack of skills and plant knowledge.</p> <p>4. The C&amp;I manager is also contemplating contracting the coal plant C&amp;I maintenance function in 2006.</p> <p>5. Cleaning contract will become a maintenance function and AMS would be able to tender for this contract.</p> <p>6. Opportunities for AMS to diversify into construction contracts due to the demand at the power stations.</p> <p>7. Provide a conveyor belt hot and cold splicing repairs and pulley lagging at Majuba power station and other power</p>	<p>increased demand for contract maintenance (<b>O8, S1-S7</b>). Leverage resources. <b>Expand into other maintenance contracts.</b></p> <p>2. Provide services to Eskom enterprise, Roshcon, which they are unable to perform, such as laser alignment.</p> <p><b>(O2, S5). Subcontract to Eskom Enterprises by providing services they are unable to perform.</b></p> <p>3. Leverage current plant knowledge to take over the operating of the ash plant. <b>(O3, S1, S2, S3, S4). Negotiate with Eskom Majuba the taking over of the ash Plant Operating.</b></p> <p>4. Leverage current plant knowledge to take over the coal plant C&amp;I maintenance function. <b>Negotiate with Majuba power station C&amp;I manager for the C&amp;I coal plant maintenance contract (O4, S1-S7).</b></p> <p>5. Take over the cleaning</p>	<p>resource capabilities to move away from generic maintenance services to a more specialised service (O7, W1).</p> <p>2. Overcome the internal weaknesses prior to expanding into the coal plant C&amp;I Maintenance, operating and cleaning at Majuba power station. The firm must develop a training system for artisans and technicians on the plant process and technical systems to increase flexibility to ensure growth. The firm must also implement the quality, safety and environmental management systems to ensure the entire organisation works according to the management systems. AMS must also move from a breakdown to a preventative maintenance approach at Majuba power station to ensure a reduction of the customer's</p>
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stations in the surrounding areas due to a geographical location advantage.	contract on the ash and coal conveying plant in 2006.	maintenance costs. The company must also target the skills development strategy and the employment equity to ensure a 65% BEE status score. The structure must include line functions for safety, quality and training. Controls must be implemented to ensure the firm achieves its strategic objectives such as quality, safety, maintenance cost reduction and growth. The culture of the organisation must be changed from a reactive maintenance approach to a proactive approach. AMS employees must work more closely with the various departments to ensure a proactive approach to maintenance. The firm must turnaround its current quality, safety, and maintenance process (O3, O4, O5, and W2-W10).
8. Tender for other plant areas maintenance contracts at Majuba power station.	<p><b>Determine the resource requirements for the cleaning contract (O5, S1-S7).</b></p> <p>6. Diversify into construction of the ash and coal conveying plants at the return to service and new power stations. <b>Diversify into construction (O6, S1)</b></p> <p>6. Diversify into construction work at the new and return to service Power Stations. <b>Diversify into construction work. O6, S2.</b></p> <p>7. Follow a related diversification into cold and hot conveyor belt splicing and pulley lagging. <b>Diversify into conveyor belt splicing (O7, S1-S7).</b></p> <p>8. Prepare for the ash and coal plant cleaning contract which is soon to become a maintenance function. <b>Diversify into the complete ash and coal plant cleaning</b></p>	<p>3. The company does not have the capabilities for</p>



	(O8, S1-S7).	construction work (O6, W1).
<p><b>Threats</b></p> <p>1. AMS can lose the current contracts at Majuba power station due to the low barriers of entrance into the contract maintenance and because the customers are price sensitive.</p> <p>2. The future of the maintenance industry will be with predictive and proactive maintenance techniques. This will reduce the amount of time based and breakdown maintenance.</p> <p>3. The contract maintenance is in a growth phase created by the return to service of the mothballed power stations and the existing stations contracting the maintenance functions to existing employees to increase productivity and reduce costs. AMS has been unable to target these industries due to imperfect market conditions. The other competitors would be able to build resources,</p>	<p><b>Possible Strategies</b></p> <p>1. Leverage the current strengths on the ash and coal plant maintenance contract to diversify into related specialist conveyor belt splicing and pulley lagging. This would overcome the low barriers to entry for the firm's existing contracts and the imperfect market conditions. AMS would have a transport cost advantage due to the geographical location and be able to use the relationship at Majuba power station to build the necessary skills required for conveyor splicing and pulley lagging (T1-T3, S1-S4).</p> <p>2. The firm can develop a customized training system to develop the skills and knowledge of the semi - skilled workers. The semi - skilled workers can be utilized as artisans after being authorized competent by Majuba power station.</p>	<p><b>Possible Strategies</b></p> <p>1. AMS must redirect its resources towards specialist maintenance tasks such as conveyor belt splicing and pulley to achieve a competitive advantage at Majuba power station and in the current geographical location. The firm must concentrate on building its core competencies on specialist maintenance and at the same time improve its current quality, safety and maintenance operations at Majuba power station. The firm still has time to change its strategic position due to the three year maintenance contracts and the relationship built between AMS and Majuba management teams (T1-T4, W1-W4, and W6-W8).</p> <p>2. Development of a training system to assist semi - skilled workers to perform the artisan tasks to</p>

<p>capabilities and core competencies.</p> <p>4. The customers seek low cost maintenance services with highly differentiated quality, safety and environmental management systems. Customers are forced to adhere to the environmental laws implemented by government due to global warming. The power stations utilize Roshcon enterprises due to cost savings.</p> <p>5. There is a shortage of experienced and qualified artisans and technicians. Eskom's expansion will create a huge demand for artisans and technicians which will create high staff turnover at AMS. This is because the employees are seeking more lucrative employment opportunities. The high unemployment, Gini coefficient, skills shortages will contribute to a labour resource problem over an extended period of time.</p>	<p>This would reduce the threat of high staff turnover created by the skills shortages and Eskom's expansion (T5, S8).</p>	<p>overcome the future high staff turnover created by the skills shortages (T5, W9, and W10).</p> <p>3. Formulate and implement a skills development and an employment equity strategy to allow the firm to achieve full BEE status (T6, W4).</p>
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<p>6. AMS has scored 40% on the new BEE codes and a score of 65% is required. The firm has not met the requirements of the following categories: employment equity, skills development, preferential procurement, and enterprise development.</p> <p>7. AIDS is a huge threat to the South African economy and adds to the problem of low labour productivity created by unemployment and skills shortages. Companies must subsidise healthcare.</p>		
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4.5.3 Interaction Matrix

Figure 4.5: Interaction matrix

Strength								
Opportunity	1	2	3	4	5	6	7	8
1	+	+	+	+	0	0	0	0
2	+	0	0	0	+	0	0	0
3	+	+	+	+	0	+	+	0
4	+	+	+	+	+	+	+	+
5	+	+	+	+	+	+	+	+
6	+	+	+	0	0	0	0	0
7	+	+	+	+	+	+	+	+
8	+	0	+	+	0	0	0	0

The interaction matrix above indicates that opportunity 4, 5 and 7 are the most appropriate strategies for AMS to pursue. These options are closely matched to the company’s internal strengths.

## 4.6 Competitor Analysis

Figure 4.6: Competitor analysis

### 1. Identify Current Competitors

#### 1.1 Market Commonality

- Roshcon (Eskom Enterprises)
- Mills Maintenance
- Steinmuller
- DB Thermal
- Moya Mansi
- Babcock
- Turnkey Projects

#### 1.2 Resource Capability

- Roschcon, Steinmuller, DB Thermal, and Babcock are large companies with financial and capital equipment resource capabilities. Roschcon is currently positioned as earth moving equipment company which reclaims the coal and removes ash towards the ash dumps. The company has diversified its service to provide a maintenance service on the coal and ash plant, which puts the company into direct competition with AMS. Amalahle cannot compete with the Roschcon since it is a subsidiary of Eskom. The Eskom buying procedure allows its subsidiaries preference over the external companies. Maintenance contracts are normally negotiated directly with Roschcon.
- Mills Maintenance, Moya Mansi and Turnkey Projects are the only small to medium companies that can compete with AMS directly due to mechanical, electrical and control and instrumentation technical capabilities. The contractors are able to tender for the AMS coal and ash plant maintenance contracts.

#### 1.3 Future Competitors

- The maintenance services industry has moved towards a growth phase created by the return to service of the previously mothballed power stations (Camden, Grootvlei and Komati power stations). These contracts have been awarded to Roshcon which allows the company to build its resources, capabilities and core competencies within the maintenance industry. The other power stations have commenced contracting maintenance functions to employees. The generic maintenance industry will become highly competitive in the near future in terms of the conditions created by Roshcon and other small to medium enterprises.
- Original equipment manufacturers are also attempting to penetrate the contract maintenance services industry.
- Technology driven companies such as software companies enhance the efficiency of the maintenance strategy by providing online condition monitoring software and equipment. This will help to predict future failures and allow the maintenance team to change equipment to prevent failures. This will reduce the need for time based maintenance which AMS provides.

#### 1.4 Future Goals of Competitors

- To grow within the contract maintenance industry. An example has been the awarding of the fuel oil maintenance contract to Steinmuller.
- To provide services that meet customer's expectations especially with quality and safety.
- Tender for the various maintenance contracts.
- Provide a low cost and highly differentiated service.
- Match service to customer needs.

### 4.7 Stakeholder Analysis

Figure 4.7: Stakeholder analysis

1. Who is the organization’s Stakeholders?					
Stakeholders	Interest/Demands	Impact	Importance of Stakeholder	Stakeholders Strength	Stakeholders Weaknesses
<i>Directors</i>	Returns on investment and sustainable income.	Change strategy and direct the firm	High	Provide direction, control, management, and risk taking.	Personal gain, and lack of strategic management capabilities.
<i>Employees</i>	Salary, security, basic needs.	Functional tasks	High	Contribute to the success of operations.	Misrepresent, not loyal, and seek better opportunities.
<i>Customers</i>	A quality maintenance service to ensure 100% availability of plant. Safety of work environment and work	Authority to terminate the contracts.	Very High	Powerful buyer. The entire organisation relies on Majuba Power	Seek low cost suppliers.

	performed. Low costs and a reduction of costs on plant.			Station ash and coal plant contracts.	
<b>Competitors</b>	Seek business opportunities	Tender at lower prices for Majuba Contract.	Very High	Competitive	Lacks the relationship with Majuba management team.

**2. What are the stakeholders stakes?**

2.1. Directors look for monetary gain, a sustainable income since AMS is the only source of income. The directors will still be involved in the operation of the company.

2.2. Employees are looking for security and job satisfaction, and jobs with more benefits.

2.3. Customers are becoming more price conscious and require suppliers to provide differentiated products through a quality service which adheres to the Occupational Health and Safety Act. Customers within the power generation industry have now started contracting of maintenance functions to employees. The maintenance contracts at Camden, Grootvlei and Komati have been contracted to Roshcon due to cost savings.

2.4. Roshcon and the other small to medium enterprises are protected from competition due to preferential procurement policies and the drive by Eskom to increase labour productivity and reduce maintenance costs. AMS is unable to target the contract maintenance growth opportunities due to imperfect market conditions. The firm must therefore diversify into other related products and services to achieve a competitive advantage at Majuba power station. The firm must also take advantage of the geographical location.

**3. What opportunities and challenges do Stakeholders present to the firm and its market competitors?**

3.1. Directors need to align themselves to the demand in the external environment for contract



maintenance. The directors also need to provide good leadership and management for the growth phase and must adopt the propensity to take risks. The directors need to also meet the demands and expectations of customers, especially with regard to the quality and safety requirements.

3.2. Due to a current shortage of skills in South Africa and the massive expansion programme of the country's infrastructure, this will put pressure on the demand for technical skills. AMS will most likely lose skills to other companies.

3.3. Customers will also employ some of AMS employees.

3.4. Competitors will continuously compete for the company's personnel.

#### **4. What Strategies or Actions Should Management take with respect to its stakeholders?**

4.1. The managers need to ensure that directors contribute to the long - term survival and growth of the company by performing a strategic analysis to determine the opportunities and threats and align the strengths to the opportunities and overcome the weaknesses and avoid the threats.

4.2. Management must ensure flexibility and continuous learning among employees. The directors and supervisors can provide plant and technical training to semi-skilled workers. This allows AMS to continue to compete on a low cost strategy and thereby prevent the loss of workers.

4.3. The company should provide services that continuously meet the customer's expectations by having a proper quality and safety management system. Build up relationships with the key customers and customize services to the needs and wants of the client.

## ***4.8 Industry Life Cycle***

### **4.8.1 Current Strategies**

These include:

- preventative maintenance solutions provider on material handling plants;
- growth strategy of expanding into other power stations with current services.

### **4.8.3. Strategic Options:**

These include:

- expand into other maintenance contracts at Majuba power station;
- subcontract to Roshcon for services they are unable to perform such as laser alignment;
- take over the ash and coal plant operating at Majuba power station;
- take over the control and instrumentation coal plant maintenance contract at Majuba power station;
- tender for the cleaning maintenance contract on the ash and coal conveying plants at Majuba power station;
- diversify into the construction of ash and coal conveying plants at previously mothballed power stations;
- diversify into pulley lagging and conveyor belt splicing;

#### 4.8.4 The life cycle matrix-stages of industry maturity

Figure 4.8: The industry life cycle analysis

	Embryonic	Growth	Mature	Ageing
Dominant	Fast Grow Start Up	Fast Grow Attain Cost Leadership Renew Defend position	Defend Position Attain Cost Leadership Renew Fast Grow  √√√√-Majuba	Defend Position Focus Renew Grow with Industry
Strong	Start Up Differentiate Fast Grow	Fast Grow Catch Up Attain Cost Leadership Differentiate	Attain cost leadership Renew, focus Differentiate Grow with industry	Find niche Hold niche Hang in Grow with industry Harvest
Favourable	Start Up Differentiate Focus Fast Grow	Differentiate, focus, Catch Up Grow with industry	Harvest, hang in, find niche, hold niche, renew, turnaround, differentiate, focus, grow with industry	Retrench Turnaround
Tenable	Start Up Grow with industry Focus	Harvest, catch up, hold niche, hang in, find niche, turnaround, focus, grow with industry  √√√√-Other Power Stations, Return to Service and New Stations	Harvest Turnaround Find niche Retrench	Divest Retrench
Weak	Find niche Catch up Grow with industry	Turnaround Retrench	Withdraw Divest	Withdraw

Source: Johnson and Scholes (1998).

The purpose of the matrix is to determine the appropriateness of the current strategies and strategic options of AMS in relation to the firm's current competitive position and the stages of the contracted maintenance services industry. At the Majuba power station the firm has entered a mature phase and has a dominant position with its growth limited to the coal plant C&I maintenance contract, ash and coal plant cleaning contracts and the complete operating of these plants. These strategic options do not allow AMS to attain a sustainable competitive advantage, as the other small to medium enterprises can tender at a lower price and take over the current employees of the firm. AMS needs to find ways to defend its current position, and always maintain a cost leadership, which makes it difficult for the small to medium enterprises to penetrate. The firm must also be able to renew its current contracts and find growth in other markets and products, due to a lack of growth in its current products in the maintenance service industry.

The contract maintenance services industry at the other power stations are going through a growth phase created by the expansion programme of Eskom. The maintenance services have been contracted to Roshcon at the three returned – to service power stations. The other power stations have also been outsourcing some of their maintenance functions to Eskom employees to increase productivity and lower costs. This creates imperfect market conditions for AMS and therefore the company is unable to achieve its growth.

The risks the firm is faced with is that, whilst it cannot target the current growth opportunities, its competitors are becoming stronger and when the AMS contract is placed on open tender, the firm stands a strong chance to losing its current contracts. It is not feasible for the firm to target the other power stations with the current generic maintenance services due to the imperfect market conditions. The specialist laser alignment demand is too small for the company to rely on for achieving a competitive advantage and growth. AMS does not have the resources and capabilities to diversify into construction of ash and coal plants. The conveyor belt splicing and pulley lagging is related to the current services offered and provides AMS with a competitive advantage because the geographical location enhances the speed of response to breakdowns and also because of the low transport costs to the customer.

### 4.9 Positioning

Figure 4.9: The positioning analysis

A	B		C			
	B1	B2	Which will be sustainable/difficult to imitate?			
Resources and competences underpinning AMS strategy	Which of these resources/competences are likely to contribute to:					
	cost reduction?	added value in terms of needs perceived by customers?	value	rare	complex	tacit
<b>1. Preventative Maintenance Solutions provider</b>						
-Skilled artisans	No	Yes	√	×	×	×
-Semi – skilled worker training	Yes	Yes	√	√	√	√
-Inspections	No	Yes	√	×	×	×
-Analyze failures on the plant	No	Yes	√	×	×	×
-Root cause analysis	No	Yes	√	×	√	×
-Reliability centred maintenance programme	No	Yes	√	×	√	√
-Reduce Costs of current maintenance and the number of	Yes	Yes	√	×	√	×

breakdowns						
-Engineers	No	Yes	√	×	√	√
<b>2. Diversify into operating the coal and ash plant</b>						
-Employ skilled operators.	No	Yes	√	×	√	√
-Training for operators.	No	Yes	√	√	√	√
<b>3. Diversify into splicing, pulley lagging in the current geographical location</b>						
-Trained beltsman and semi – skilled workers.	No	Yes	√	√	√	√
-Splicing machinery	No	Yes	√	√	√	√
<b>4. Provide current services on other plant areas within power generation.</b>						
	Yes	No	×	×	×	×
<b>5. Continue to focus on Majuba</b>						
	Yes	Yes	√	×	×	×

<b>by expanding into cleaning and C&amp;I coal plant maintenance.</b>						
<b>6. Diversify into construction</b>						
-Engineers	No	No	×	×	×	×
-Project Managers	No	No	×	×	×	×
-Performance Guarantees	No	No	×	×	×	×

The current strategy of being a preventative maintenance solutions provider increases the firm’s costs with investments in resources which can perform root cause analysis, and plant performance management. The firm’s current strength lies in a breakdown maintenance approach. This preventative approach to maintenance is perceived as a high value for the maintenance department of Majuba, but the procurement department Majuba assesses generic maintenance contracts on price because the other contractors on Majuba power station have similar capabilities. The industry life cycle analysis indicates the imperfect market conditions which prevent AMS from targeting the generic maintenance services to achieve growth at other power stations. The firm is not protected from competitors, and if AMS continues to provide the same services, it will lose its current contracts. Diversifying into operating does not give the firm a competitive advantage because other competitors are tendering for the existing contract and utilising the same labour resource. An excellent opportunity exists for AMS to diversify into conveyor belt splicing and pulley lagging since the other competitors such as Roshcon and small to medium enterprises do have the capabilities within the geographical location. This gives AMS a competitive advantage. AMS can provide these services at a lower cost as its geographical location enables a swift response to conveyor belt breakdowns and savings on transport costs. The firm can also target other power stations and industries in the nearby surrounding areas such as Tutuka, Camden, and other industries. Positioning the firm as a low cost generic preventative

maintenance services provider is risky due to the ability of small to medium enterprises to tender at much lower prices. Diversifying into construction does not provide the firm with a cost advantage and a competitive advantage at the Majuba power station.

#### ***4.10 Value chain***

The value chain analysis below reveals the following: strategy 1 does not create customer value and has low barriers to entrance for competitors; strategy 2 creates value to the customer by providing a fully integrated maintenance and cleaning service on the coal plant. This strategy would help to reduce the integration problems between the current cleaning contractor and AMS. Competitors are still able to tender for these contracts due to the medium barriers to entry. Strategy 3 is similar to strategy 2. Strategy 4 provides AMS with the most appropriate opportunities as the firm would be able to provide value to Majuba due to the low travelling costs charged by AMS and the quick response time. The firm would also be able to create high barriers to entry to the small and medium sized companies, whilst it will be able to retain a cost advantage against the larger companies. AMS will be able to achieve growth by providing the conveyor belt splicing services to other power stations and industries within the current geographical location. Strategy 5 does give AMS a competitive advantage due to the low profit potential for laser alignment services. Strategy 6 has a high profit potential, but does not add value to AMS current services and customers. This strategy requires large amounts of financial resources and this places AMS into a risk situation because debt finance would be required.

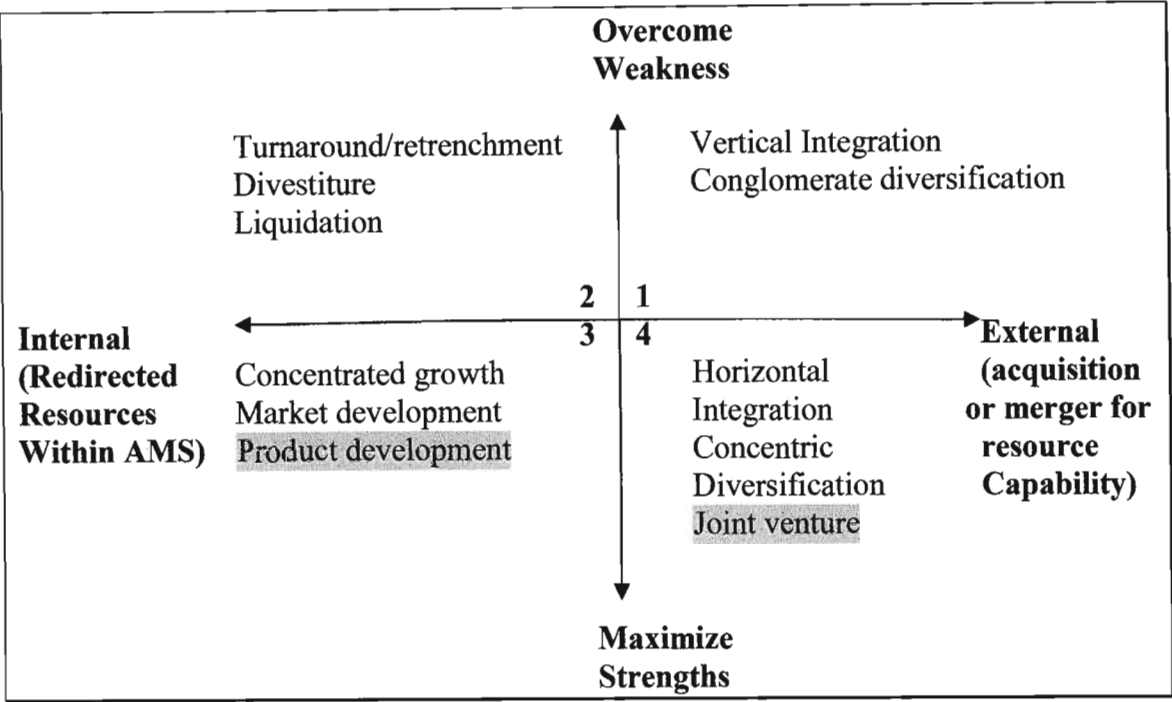


Figure 4.10: Value Chain Analysis

Degree of Synergy with present activities	Strategy 1: Provide current services on other plant areas within Majuba and other stations	Strategy 2: Continue to focus on Majuba by expanding into cleaning and C&I coal.	Strategy 3: Diversify into coal and ash plant operating	Strategy 4: Diversify into splicing and pulley lagging	Strategy 5: Subcontract to Roshcon for laser alignment	Strategy 6: Diversify into construction
Profit potential	Med	Med	Med	High	Low	High
Create customer value by reducing maintenance costs, and increases convenience, and speed of response	Low	High	High	High	Low	Low
Increase availability of plant maintained	Low	High	High	High	High	Low
Reliability, quality and safety	Low	High	High	High	High	High
Barriers to other firms	Low	Low	Med	High,	Med	Low

4.11 Grand Strategy Matrix

Figure 4.11: Grand strategy selection matrix

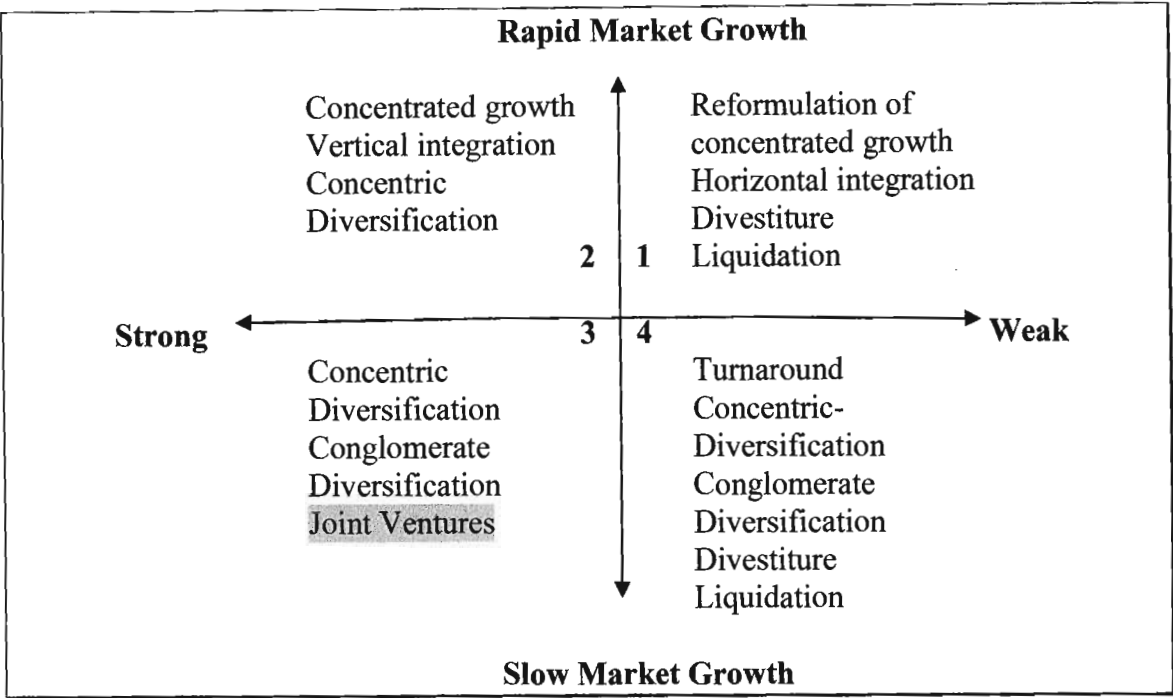


Source: Pearce and Robinson, (2003:208).

Figure 4.11: The Strategy Selection Matrix has two variables which are of importance for AMS in the selection process, the first being the purpose of the grand strategy, and second being the choice of an external or internal emphasis for growth and profitability. The firm is currently placed in quadrant three, whereby AMS is required to redirect the current resources to provide a specialist conveyor belt splicing and pulley lagging service to achieve a competitive advantage because the imperfect market conditions are preventing the company from targeting the generic contract maintenance industry. The firm can also form a joint venture with a splicing contractor to take advantage of its current geographical location.

4.12 Grand strategy clusters

Figure 4.12: Model of grand strategy clusters



Source: Pearce and Robinson (2003:210)

Figure 4.12 depicts the model of grand strategy cluster which measures the two variables of AMS: growth rate of the generic maintenance contracts, and the company's competitive position in the market. AMS is unable to target the contracted maintenance at the return to service power stations and the existing stations due to imperfect market competition. The firm has a strong position at the Majuba power station and the contracted maintenance industry within Majuba is reaching a mature phase. The company is required to form a joint venture with one of the splicing contractors to achieve a competitive advantage over Roshcon and some of the smaller competitors. The company has a strong competitive position due to its geographical location advantage.

#### **4.13 Structure**

According to the theories of Hill and Jones (2004), organisational structure follows the strategy. This however is not followed in AMS. The company continuously changes its structure according to the demands of the breakdown maintenance tasks required. The current structure is too rigid and does not allow for flexibility within the organisation. The company does not have long - term objectives and short - term objectives to achieve its strategy. Therefore, the company continuously changes its structure and there is a lack of alignment between the company's strategy and structure. The current structure is also designed to keep the ash and coal plant of Majuba power station running, thus ensuring the customer is satisfied. Some of the supervisors delegate authority without responsibility. The major problem with AMS structure is the allocation of responsibilities and authorities. There is a lack of ownership among the managers, supervisors, artisans and directors. The structure needs to be designed to cater for the strategy of providing a proactive maintenance service. Middle management within the organization relies on the operations director to make decisions. This therefore puts a large amount of pressure on the director. Decision - making needs to be pushed lower down the organisation to create flexibility and speed. According to the management profile by Myer Briggs (in Fleisher and Bensoussann, 2003) artisans have a sensing perceiving management personality which indicates the following: likes precise and routine work, is not comfortable with solving new problems, takes pleasure in the current moment, likes to start many projects but has problems finishing them, and lastly encounters problems with decision - making. According to the theories of Hill and Jones (2004), the organizational structure of AMS is performing poorly since a huge amount of decision - making is sent to the operations director. The operations director also experiences overload since the authority and decision - making are centralised. Examples of this are the quality control plan which is controlled by the operations director. Some of the supervisors have complained about the many decisions which are made with respect to the work on the plant. The artisans and semi - skilled workers pass on a huge amount of plant technical decision - making to the supervisors, forcing them to be involved in the plant. The reason is that the firm makes use of semi - skilled workers and artisans who are not qualified. This creates problems with flexibility and

decision - making. The semi - skilled workers and artisans who are not qualified take longer to learn the plant due to learning by experience. If a new problem occurs which the artisans or semi - skilled workers have not experienced previously, they will require assistance from the qualified artisans and supervisors.

#### ***4.14 Controls***

AMS does not make use of strategic controls which monitor and evaluate whether the structure and strategy are working as set out, and how these could be improved, and how they could be changed if they are not working. The overall purpose of control is to ensure that the company is able to achieve its objectives as set out by the chosen strategy and mission statement. The problem that AMS is faced with is the lack of strategic planning. The company does not set formal strategic objectives. The only level the firm operates within is the functional level. This level still does not have the appropriate controls. Therefore the firm's only strategy is to fix problems on the plant when they occur in order to keep the customer satisfied. The company also utilises the production plan as a control tool to ensure that the previous days work or work that is planned for a certain date is completed. The company has indicated its strategy is to provide preventative maintenance so as to prevent future failures and breakdowns on the plant. The current controls are not appropriate to this strategy. The customer has also included a requirement that suppliers need to adhere to safe work procedures. Risk assessments and safe work procedures need to be handed in by the customer which AMS has not been successful in obtaining. There seem to be many integration problems with the other departments within the Eskom Majuba power station, such as the operating department which does not follow proper procedures to make the plant standby. The failure to make sure that plant is on standby by the operators causes the high amount of callouts for AMS. Sometimes the equipment and plant failures are initiated by operating errors. The cleaning contractor also affects the operations of the plant. Since the ash and coal create environmental problems for the equipment, these plants require continuous cleaning and monitoring for excess ash and coal which enters the equipment. The cleaning contractor's employees do not have plant process and equipment knowledge and therefore do not understand the importance of cleaning the

equipment. The spares which are controlled by Eskom supervisors are not the original spares and AMS employees have to modify the equipment to ensure safe operation of the plant.

AMS uses the morning production meeting as a means to control its work thus checking if the work is complete. This is a problem because most of the work on the production plan results from breakdowns from the previous day's operations log. This therefore contributes to a breakdown approach to maintenance. The supervisors plan the work on a daily basis after the production meeting by listing the jobs to be performed on a flip chart. The work is planned on a daily basis according to breakdowns which also contributes to a breakdown approach. The preventative maintenance job cards are initiated by the Eskom schedulers after the AMS planner indicates that the week's preventative maintenance job cards need to be printed. These job cards are then handed over to the artisans according to their respective plant areas. The artisans then sign off most of the job cards as though the work has been performed on the plant. There are currently no controls in place to ensure that the work with respect to the preventative job cards has been performed. The current procedure required by Eskom is for the defects to be initiated before the actual work is done on the plant. This enables Eskom to measure the contractors on their performance.

On the other hand AMS planner collects a list of completed defects and then hands it over to the scheduler to be initiated, thus ensuring a two day turnaround time and the attainment of maximum points in the key performance indicators with respect to the performance bonus. This is not a true reflection of the defects turnaround time. This creates inefficiencies and no value for the customer. The aim is to create customer value. The planner does not monitor the number of preventative maintenance job cards that are actually performed on the plant. There are currently no controls to measure the performance of the employees in achieving their production targets. Nor are there any controls for the company to evaluate and monitor the plant performance. AMS thus has many problems with its controls and needs to take a closer look at this area to develop the necessary controls so as to ensure the achievement of its strategic objectives.

Chapter Five will provide the solutions to these problem areas identified with respect to the controls.

#### ***4.15 Culture***

The reactive approach to maintenance is entrenched in the values of the entire organisation. The members believe that breakdown maintenance is a priority. This has been caused by the continuous failures that previously occurred in the various plants. The members acknowledged and utilised the breakdown approach to maintenance. The breakdown approach to maintenance has become a norm within the organisation. The employees of the organisation also believe that preventative maintenance is not important and is only a paper exercise to fill in the job cards to keep the customer and directors satisfied. It has become a norm for the organisation or employees to fix the problems that appear on the customer's production plan. It has also become a norm to prioritise work that can damage the company's image. All organisation members cling to their current beliefs due to nonexistent planning and controls to ensure that preventative maintenance is implemented. The current attitudes adopted by the employees are that they do not like paperwork and are not accustomed to be moved to other plants. Another attitude adopted by the employees is a lack of respect for authority caused by a lack of authority and responsibility lines and also by seeing some of the directors on the same level as they are. The employees expect the directors to work on the plant just as they do.

Over the years the employees have also adopted the belief that the operations director is the boss. They respect his authority and take any responsibility dictated by him. The the employees expect to be told what needs to be done and the directors and supervisors must help the employees to make the decisions. The employees are also accustomed to hard work and a friendly culture. They rely on the supervisors and the supervisors in turn rely on the operations director for decision - making. Most of the employees are reluctant to take responsibility. The different cultures that have been identified have been created due to a lack of controls and change management and also a lack of performance management of the plant and the respective employees who work on the

plant. The company lacks the innovation culture which is required for the proactive approach to maintenance. Safety on the plant is critical for the survival of AMS, but the employees do not see its importance due to a lack of training and communication from the supervisors and managers. The current organisation and individual culture is not in line with the company's strategy. Chapter Five will provide recommendations to the culture problems identified above.

#### ***4.16 Leadership***

According to Rothschild (1996) the leader required for a growth phase is one that promotes aggressive growth, creates dynamic change and has a killer instinct. Currently the leadership style is that of the evolutionary caretaker which creates gradual growth and promotes evolution. Small to medium enterprises cannot afford to employ different leaders but must adapt to the changing environments. This leadership style is appropriate to Majuba power station. This is because the power station contract maintenance industry is currently in a mature phase. The other power stations are experiencing a growth phase which AMS has been unable to target due to imperfect market conditions. The leadership style required is that of a risk taker. The leader needs to direct the company to diversify into new services and products and therefore have the propensity to take risks by targeting the growth with new maintenance services.



4.16.1 Management Profiling

Figure 4.13: Management Profiling

<b>Organisation member category</b>	<b>Extravert(E) Versus Introverts(I)</b>	<b>Sensing(S) Versus Intuition(N)</b>	<b>Thinking(T) Versus Feeling(F)</b>	<b>Judgment(J) Versus Perception (P)</b>
<b><u>1. Directors</u></b>				
1.1. <i>Operations Manager</i>	Introversion(I)	Intuition(N)	Thinking(T)	Judgement(J)
1.2. <i>Coal Plant Supervisor</i>	Introversion(I)	Sensing(S)	Feeling(F)	Judgement(J)
1.3. <i>Projects Manager</i>	Extravert(E)	Sensing(S)	Feeling(F)	Perception(P)
1.4. <i>Planning Manager</i>	Introversion(I)	Sensing(S)	Feeling(F)	Perception(P)
1.5. <i>Marketing Manager</i>	Extrovert(E)	Intuition(N)	Thinking(T)	Judgement(J)
<b><u>2. Supervisors</u></b>				
2.1. <i>Mechanical Supervisor</i>	Extravert(E)	Sensing(S)	Feeling(F)	Perception(P)
2.2. <i>C&amp;I Supervisor</i>	Introvert(I)	Intuition(N)	Thinking(T)	Judgement(J)
<b><u>3. Artisans</u></b>	Extravert(E)	Sensing(S)	Thinking(T)	Perception(P)
	Introvert(I)	Sensing(S)	Thinking(T)	Perception(P)
	Extravert(E)	Sensing(S)	Feeling(F)	Perception(P)
	Introvert(I)	Sensing(S)	Feeling(F)	Perception(P)

From the analysis above, the operations director, marketing manager and C&I supervisor are rational-intuitive thinking (INTJ), whilst the project manager, planning manager, ash plant supervisor and artisans have an artisan-sensing perceiving management personality, and lastly the coal plant supervisor (director) has a guardian-sensing judging management personality.

#### **4.17 Summary**

- The STEEP analysis technique covers the new BEE codes which affects AMS. The firm lacks gender equity, skills development, preferential procurement, enterprise development and employment equity. The firm has performed well in achieving black equity partnership, management and social development.
- The demand for electricity in South Africa has contributed to Eskom's power generation expansion which positively affects AMS.
- The maintenance techniques are moving towards a predictive and proactive approach. This affects AMS negatively, as the firm relies on time based or preventative maintenance.
- Stringent environmental sustainability laws have been imposed by governments. This therefore contributes to Eskom requiring contractors to adhere to the environmental laws.
- Technical skills shortages in South Africa will have a major effect on AMS. The AIDS epidemic is also affecting many companies. Research indicates that the AIDS epidemic will reduce the South Africa labour force 21 % in the year 2015.
- The industry analysis indicated that AMS provides a generic maintenance service which is easily imitated. AMS has been unable to target the growth in contract maintenance at the return to service and existing power stations due to the imperfect market conditions. These contracts have been contracted to Roshcon which is a subsidiary of Eskom and to existing employees.

- There has been an increase in demand for conveyor belt splicing and pulley lagging. AMS currently has a geographical location advantage over existing splicing contractors.
- The functional capability and resource analysis indicates the following resources which provide AMS with a competitive advantage, the relation and reputation with the Majuba power station management team, the years of experience and knowledge gained by the supervisors, directors and employees within the maintenance industry, and the firm's ability to provide a quick breakdown maintenance service.
- The stakeholder analysis indicates that the customers seek services with low costs and highly differentiated quality and safety management systems. AMS will lose most of the artisans and technicians due to the technical skills shortages and the high demand for artisans created by Eskom's expansion.
- The industry life cycle indicated that the contract maintenance industry within Majuba power station is in a mature life cycle. The contract maintenance life cycle in the other power stations is in a growth phase which AMS has been unable to target due to imperfect market conditions.
- The positioning analysis indicated that the current maintenance services offered are easily imitated by competitors.
- The value chain indicates that, if AMS continues to concentrate on Majuba power station, the barriers to entrance are low and competition will increase in the near future.
- The grand strategy matrix indicated that AMS must redirect its resources to maximise the firm's strengths.
- The grand strategy cluster shows that AMS is faced with a slow market growth but still has a strong position at Majuba and surrounding areas due to its geographical location advantage over competitors.
- The structure does not follow the strategy of preventing plant failures. The structure follows a breakdown approach to maintenance.
- The company lacks controls to ensure that the plant preventative maintenance, quality and safety management systems are implemented effectively and efficiently.

- The culture category indicated that the reactive approach to maintenance is entrenched in the values of the entire organisation.
- The leadership style of the operations director is that of a evolutionary caretaker which creates incremental growth and promotes evolution. The leadership style is appropriate to the mature contract maintenance industry life cycle of Majuba power station.

## **CHAPTER 5: RECOMMENDATIONS**

### ***5.1 Introduction***

This chapter provides a brief summary of the research findings. The chapter also provides recommendations on the strategic gaps identified in Chapter Four. The strategic gaps in each category and subcategory will be identified according to the strategic analysis, strategic choice and strategic implementation. The recommendations will thereafter be provided for each strategic gap. The recommendations will thereafter be transformed into action plans identifying the responsible personnel. Controls will be listed to ensure the fulfillment of the strategic objectives.

### ***5.2 Research Findings***

The study has found that there is a mismatch between the strategy chosen by the firm and the current strategic analysis. The strategy of positioning the company as a preventative maintenance solutions provider is threatened by the imperfect market conditions. These conditions have been created by Eskom contracting the preventative and breakdown maintenance to Roshcon which is a subsidiary of Eskom. Some of the stations have also contracted some of the maintenance functions to employees. The company directors are unaware of these threats and continue to target these markets with the current maintenance services due to a lack of strategic management. The services provided by AMS are generic and are easily imitated by competitors. There is a high risk of AMS losing its current contracts due to the customers being price sensitive.

The study has also found strategic gaps between the strategic choices and strategic implementation. The company has been unsuccessful in implementing the quality, safety and a preventative maintenance system due to a lack of controls and management capabilities. The recommendations in the following sections have provided the solutions to the strategic gaps identified.

### ***5.3. Strategic Analysis***

The new BEE codes require the firm to obtain 65% score of which the firm has been able to achieve 40% from the equity ownership, management and social development (SETA Newsletter, 2005). In order for the firm to achieve 65% it must include the skills development and employment equity categories of the BEE codes. The firm does not rely on suppliers and therefore would be unable to target the preferential procurement categories. The skills development would ensure continuous learning and development of the semi - skilled workers and artisans.

Technical skills shortages are a major threat facing AMS. The skills shortages and Eskom's expansion would create lucrative opportunities for the firm's artisans and technicians to obtain employment at the larger companies. These companies would be able to provide the incentives and the security required by the artisans. AMS would be unable to retain and attract suitably qualified and experienced artisans because it is a small to medium enterprise. It is therefore recommended that AMS continue to utilise the semi - skilled workers on the plant. A proper training programme must be developed to ensure that the semi - skilled workers are competent. The training programme must be customized to the power station process, technical systems and be able to enhance the employees ability to perform tasks without supervision. This also affords AMS the opportunity to retain the low cost advantage of utilizing semi - skilled workers.

Contractors within Eskom power generation are required to adhere to the environmental laws. The firm does not adhere to these laws. It is therefore recommended that AMS train the supervisors and directors on the subject of the environmental requirements and develop an environmental management system which must be implemented throughout the organisation to ensure legal compliance.

The firm is legally required to ensure a safe working environment for all the employees. The analysis in Chapter Four indicates non - compliance to safety regulations. The company currently regards safety as a non - core function. AMS could lose the contract due to non - compliance and legal action could be taken against the directors and

management. It is therefore extremely important for the directors to implement the safety management system throughout the organisation to ensure the safety of workers, customers and directors. It is recommended that safety management become a core business function and that the required legal safety officer and safety representative appointments are made.

The analysis in Chapter Four has indicated the threat of the new maintenance techniques of online condition monitoring which reduces the amount of time based maintenance. The time based maintenance is a core business function for AMS. The power generation industry has been slow to adopt these new techniques. The older power stations will most probably adopt these new techniques because of the need to reduce maintenance costs and extending the life cycles of the equipment and machinery. The company is therefore recommended to monitor the customer buyer behaviour with respect to the online condition monitoring techniques.

The AIDS epidemic is a huge threat in South Africa which affects labour productivity. Companies in the near future will be required to provide compulsory medical subsidies to the employees. AMS must therefore monitor these future requirements and initiate strategies to include medical benefits as a cost to prepare for the future.

The industry analysis has revealed that the contract maintenance industry is going through a growth phase created by the return to service of the previously mothballed power station. These contracts have been contracted to Roshcon which is a subsidiary of Eskom and receives preference over other companies. The existing power stations have also begun to contracting some of the maintenance functions to existing employees. AMS has been unable to target the growth due to imperfect market conditions. The company has been positioned as a preventative maintenance solutions provider and has been targeting the other power stations with the current services to achieve growth. The other competitors such as Roshcon would be able to build resources, capabilities and core competencies and compete with AMS over time for the Majuba contract. It is therefore recommended that the firm repositions itself in the market to achieve growth and a competitive advantage. The services offered by the firm are easily imitated. This

is because the services being offered are generic and can be provided by the other smaller contractors. The strategic choice section will indicate the recommendations with respect to the strategic choices the firm must make.

The competitor analysis demonstrates the increased competitiveness in the near future within the generic contract maintenance industry. The competitiveness is created by the growth in demand for contract maintenance within the power generation industry. The imperfect market conditions place AMS in a weaker competitive position for the near future. If AMS continues to provide the current services in the near future the firm is positioned to lose the current contracts. It is recommended that AMS change its strategic position to remain competitive and protect the current contracts. The firm must provide services and products which the competitors are unable to provide.

The stakeholder analysis has indicated the director's inability to perform strategic analysis and planning. The directors must therefore monitor the customer trends and requirements, the strategies of competitors, and political or legal regulations on a continuous basis. The customers currently seek contract maintenance services at a low price with highly differentiated quality and safety management systems to ensure a reduction of maintenance costs. It is therefore recommended that AMS include safety and quality as core business functions to ensure a reduction of plant failures.

Functional capability and resource analysis indicates that AMS provides a breakdown approach to maintenance. The approach is not aligned to the strategic position chosen by the firm to provide a preventative maintenance service. Quality and safety are not implemented throughout the organisation. The current low cost strategy of utilising semi - skilled workers is not aligned to the process of AMS providing a differentiated preventative maintenance service. The semi - skilled workers and artisans are unfamiliar with the plant process, technical systems and the quality and safety management systems. The company currently has many integration problems with the engineering and operating departments. The root cause analysis is controlled by the engineering department which lack the urgency, as this is seen as a maintenance function. The planning function is redundant and does not add value to the customer. The structures in



the following sections on strategy implementation will provide the recommendations on how the firm must resolve the above problems.

#### ***5.4 Strategic Choice***

This section will provide recommendations concerning the strategic choices the firm is required to make.

The SWOT interaction matrix recommends that the firm must continue to target the Majuba power station for the coal plant control and instrumentation contract, the ash and coal plant cleaning contract and must finally diversify into conveyor belt splicing and pulley lagging. The firm must take advantage of its relationship with the Majuba management team and commence to provide these services within the station.

The industry life cycle analysis indicates that the contract maintenance industry life cycle within the Majuba power station is moving towards a mature phase. The analysis technique recommends that AMS defend its dominant position within Majuba on the ash and coal plant by attaining cost leadership on the current services offered, renew the existing contracts before these contracts are placed on open tender and achieve fast growth by tendering for the coal plant control and instrumentation contract and the ash and coal plant cleaning contract. The company is still at risk if it continues to rely solely on the Majuba power station and must therefore achieve growth within the other Power Stations. The industry life cycle analysis technique also indicates that AMS is in a tenable competitive position within the other existing, return-to-service, and new power stations due to imperfect market conditions. There has been an increase in demand for contract maintenance at these power stations. The imperfect market conditions were when Eskom awarding the maintenance contracts to its subsidiary, Roshcon enterprises, and current employees at the existing stations. It is therefore recommended that the firm grows with the industry by finding a niche service or product the competitors are unable to provide. According to Porter's theory, AMS must provide a unique mix of products or services which the competitors are unable to provide (Porter, 1996). The niche service AMS finds must be able to create barriers to the existing Majuba power station

contracts and achieve growth in the other stations and industries in the current geographical location.

The positioning analysis technique indicates that AMS must diversify into conveyor belt splicing and pulley lagging. This strategy has been chosen due to the current lack of suppliers in the geographical region within which AMS operates. These suppliers charge exorbitant prices for transport costs. If AMS were to provide these services it would add value to the existing contracts within the Majuba Power Station by reducing the amount paid by the customer for transport costs. AMS will be able to provide quick response to conveyor belt breakdowns due to being within close proximity to the Majuba power station which the existing suppliers are unable to provide. The company can also provide these services to the other power stations and industries within close proximity to ensure growth. The company would also be able to achieve a sustainable competitive advantage by providing a unique mix of products. This would create barriers to entry to the existing contracts and achieves an incremental growth.

The value chain analysis technique also indicates the strategic option of AMS diversifying into conveyor belt splicing and pulley lagging as the most appropriate for the firm to choose. This strategy provides the greatest amount of synergy for the firm's current operations. The strategy builds on the current resources and is related to the current services provided on the ash and coal conveying plant. The firm currently provides a maintenance service on the mechanical, electrical and control and instrumentation equipment which is utilised to run the conveyor belts. If the firm were to diversify into conveyor belt splicing and pulley lagging, it would provide a unique mix of services which the competitors are unable to provide.

The grand strategy analysis technique recommends AMS to redirect the current resources to provide a specialist conveyor belt splicing and pulley lagging service to achieve a competitive advantage since the imperfect market conditions prevent the company from targeting the generic contract maintenance industry. The technique also indicates that the firm can form a joint venture with a splicing contractor to take

advantage of its current geographical location to enable the firm to build the necessary skills and knowledge to perform the required tasks.

The grand strategy cluster in Chapter Four reveals that AMS has a strong position at the Majuba power station and the contracted maintenance industry within Majuba is reaching a mature phase. The technique recommends the firm to form a joint venture with one of the splicing contractors to achieve a competitive advantage over Roshcon and some of the smaller competitors.

### ***5.5 Strategic implementation***

This section provides recommendations concerning the strategic implementation gaps identified in the structure, leadership, culture and controls categories.

The structure category of the strategic implementation in Chapter Four has highlighted the gaps which will be discussed in the following sentences. The firm's structure does not follow the strategy of providing a preventative maintenance instead the company provides breakdown maintenance. The quality and safety functions are not implemented throughout the organisation. The artisans and semi - skilled workers lack the plant process, technical systems, and quality and safety systems knowledge. The company does not perform root-cause analysis as this function is performed by the engineering department. The planning function is redundant and does not add value to the contract. The decision - making is centralised for most functions and contributes to a lack of accountability and responsibility among the artisans. The artisans and semi - skilled workers pass the maintenance - decision making to the supervisors which forces them to be involved in the plant. The supervisors do not have the time to monitor plant breakdowns and ensure that the preventative maintenance is effective. It is therefore recommended that the supervisors move away from performing the plant maintenance as these tasks must be given to the artisans. The artisans must also take over the planning function to ensure responsibility and accountability over the preventative and breakdown maintenance job cards. The supervisors will then be able to ensure that the

preventative maintenance is effective on their respective plants by determining the number of breakdowns.

The supervisors must also record all re-occurring breakdowns and together with the engineers they must determine the root-cause of failures. This will allow the supervisors to modify the preventative maintenance program thereby ensuring its effectiveness. The supervisors, together with the operations director, must be trained on the safety and quality management systems. The supervisors must implement the safety and quality management system in each of their respective plant areas. The supervisors must thereafter perform safety and quality audits on the plant and thereby empower the artisan to take accountability and responsibility for the plant. The operations director can perform safety, quality and plant performance audits on the respective supervisors to ensure the company is achieving its strategic objectives and to maintain competitive advantage at the Majuba power station. AMS supervisors and artisans must develop stronger relationships with the engineering and operating departments by setting up meetings to discuss problem areas and take the appropriate corrective actions. The firm must also include a training management system as a core function to enable the company to achieve a cost advantage by consistently training the artisans and semi-skilled workers on the plant process and technical systems, quality and safety. The planning manager can take over a training management role.

The controls category of the strategic implementation identifies the following controls strategic gaps: the firm lacks strategic controls to ensure that the mission and the strategic objectives of the firm are being achieved; the supervisors and artisans utilise Eskoms daily production plan to plan maintenance tasks, there is also a lack of plant and employee monitoring. It is therefore recommended that the operations director and marketing manager monitor the company's strategic objectives on a continuous basis. The structure category above has indicated the approach the firm will utilise to move from breakdown to preventative maintenance. The supervisors must monitor the daily production plan and plan preventative maintenance work in advance to ensure the flexibility of labour resources. The supervisors, together with the operations director,

will be able to monitor plant and employee performance due to the responsibilities being pushed down the organisation.

The culture category indicates that the norms of the firm are to follow a reactive approach to plant maintenance, regarding preventative maintenance, quality and safety as a paperwork exercise. These norms have been created by the supervisors and directors performing the tasks and taking responsibility for most of the work. The artisans and semi - skilled workers have become accustomed to the norm and believe that the directors must be responsible. The artisans expect the directors to participate in the daily maintenance activities. This situation has developed through a lack of controls to ensure that the employees perform the tasks and the maintenance is performed according to the required quality and safety standards. The controls and structure categories have already indicated the solutions for the culture strategic gaps.

The leadership category in Chapter Four indicates the profile of each leader within AMS. The operations director is an evolutionary leader and seeks to take care of the current contracts at Majuba power station. This leadership style is appropriate for the current mature phase of the contact maintenance within Majuba power station. The contract maintenance within the other power stations is going through a growth phase. In order for AMS to target this growth, the company requires a leader who has a propensity to take risks. The operations director lacks this characteristic. The operations director together with the marketing manager and control and instrumentation supervisor are intuitive and rational and are suited for tasks that involve long - term planning such as strategic management. The coal plant supervisor has a guardian, sensing and judging personality characteristic and is suited to assisting employees and building relationships. The projects manager, planning manager, Ash plant mechanical supervisor and artisans have an artisan-sensing and perceiving personality characteristic and are suited towards daily operational tasks. This is due to their inability to run projects to completion and also lose sight of distant goals. It is therefore recommended that the leaders move the company towards achieving its strategic objectives. The leaders must consistently build the capabilities of the firm in advance to meet the future external opportunities. The leaders are therefore required to continuously change the

firm's position as the competitive dynamics and customer trends affects the firm's services and products. The leaders must be able to empower the employees by transferring the skills required on a continuous basis.

### ***5.6 Strategic objectives and action plans***

This section discusses the strategic objectives and full action plans that are required by AMS to ensure the strategic gaps identified in the preceding sections are resolved. The action plans would indicate how, by whom and when the objectives are to be achieved. The action plan also indicates the controls that are required to ensure that the strategic objectives are met.

- Target the coal C&I maintenance contract, ash and coal plant cleaning contract at the Majuba power station.
  - The marketing manager must research the resource requirements for the cleaning and C&I maintenance contract before the contracts are placed on open tender by January/February 2006.
  - Obtain prices and quotes on the specialised equipment required for the contracts by January/February 2006.
- Diversify into conveyor belt splicing and pulley lagging at the Majuba power station.
  - The marketing manager must research the costs of purchasing the specialised conveyor splicing and pulley lagging equipment by March 2006.
  - Determine the specialised skills required and where the employees can receive the appropriate training by March 2006.
  - Contact the current splicing contractors and propose a joint venture option by January/February 2006.
  - The company must provide the splicing and pulley lagging services by July 2006.
  - The company must also provide these services to other power stations within close proximity to the Majuba power station by December 2006.

- Move from a breakdown to a preventative maintenance approach at Majuba power station.
  - Supervisors must move away from performing the plant maintenance as these tasks must be given to the artisans by January/February 2006. The supervisors must oversee the functions until the artisans are able to perform the functions on their own.
  - The weekly planning functions of the preventative maintenance work must be given to the artisans by January/February 2006.
  - The supervisors must record all the re-occurring breakdowns and together with the artisans perform root-cause analysis on the failures and modify the preventative maintenance tasks. This must be accomplished by February 2006.
  - The supervisors must perform weekly inspections on the plant to identify defects and malfunctioning equipment. This must be accomplished by February 2006. The supervisors must also be in continuous communication with the Eskom operators to determine the malfunctioning equipment. They must be in charge of planning the preventative maintenance tasks three months in advance.
  - The supervisors must monitor the plant performance by identifying the problematic plant areas within the ash and coal plant. The supervisors must also evaluate the employee's performance on a continuous basis.
  - The operations director must analyse the overall plant performance by analysing the customer's plant management information system on a monthly basis. The operations director must have a monthly meeting with the supervisors, artisans and semi - skilled workers to discuss resolutions to the poorly performing plants.
  
- Make the quality and safety functions the core functions of the company and implement the functions throughout the organisation. The company must also develop environmental procedures.
  - The directors and supervisors must receive training on the safety, quality and environmental management systems by February 2006.

- The safety, quality and environmental management system must be implemented throughout the organisation by the directors and supervisors (June 2006).
  - The supervisors must perform weekly audits on the safety and quality of their respective plants. The supervisors must also train the artisans and semi - skilled workers on the safety and quality systems.
  - The operations director must perform safety and quality audits on the supervisors on a monthly basis once the safety and quality has been implemented (July 2006). This is to ensure the effectiveness of the safety and quality management system.
- Formulate and implement a customised training system for the artisans and technicians at the Majuba Power Station
    - The planning manager must take over the responsibility of the training function by January 2006.
    - A customised training system must be developed which equips artisans and technicians with the ash and coal plant process, technical, and equipment functionality knowledge, and the identification of critical plant equipment which causes safety and plant load loss problems. This must be accomplished by June 2006.
    - The training system must be implemented throughout the organization and audited by the operations director on a monthly basis to determine the effectiveness of such a system (July 2006).
  - Improve the relationships between the engineering and operating departments at Majuba power station.
    - The directors and supervisors must have weekly meetings with the operating and engineering departments to resolve integration and plant problems (January/February 2006).
  - Continuously monitor the customer's needs and requirements, the online conditioning market, the imperfect market conditions, and the requirements of competitors and government.



- The marketing manager together with the operations director must monitor the customer's requirements, the political and legal requirements and the competitor's actions to determine the opportunities and threats facing the company. The directors must hold a monthly strategy review meeting to determine the effectiveness of gaps in the company's strategies and thereby continuously improve the company strategic objectives (February 2006).
- Improve the BEE status by targeting the skills development and the employment equity strategies.
  - The training manager must research the requirements for meeting the skills development strategy (March 2006).
  - The skills development strategy must be implemented throughout the organisation to ensure compliance to the BEE codes. (August 2006).
  - The company must improve the employment equity by June 2007.
- The directors must be familiar with the requirement of AIDS management within the workplace.
  - The operations manager must research the requirements by government with respect to AIDS management (January/February 2006).

## ***5.8 Summary***

- The firm must include the skills development and the employment equity categories to achieve the required 65% BEE score.
- AMS must utilise the semi - skilled workers as artisans by developing a training system. The training system must be customised to the power station process and technical systems to ensure continuous learning among the semi - skilled workers.
- The quality and safety systems must become the core functions of the company. The directors and supervisors must be trained in these systems.
- AMS must monitor the customer's buyer behaviour with respect to online condition monitoring techniques.

- AMS must monitor the future legal requirements for AIDS management within the organisation.
- The company must reposition itself in the market to overcome the current easily imitated maintenance services.
- The company must provide products and services which the competitors are unable to provide.
- The company must take advantage of the current strong relationships with Majuba power station personnel and target the control and instrumentation coal plant maintenance contract, the ash and coal plant cleaning contract. The firm must also diversify into conveyor belt splicing and pulley lagging.
- The company must grow with the contract maintenance industry by finding a niche service or product which Roshcon and the existing employees who receive maintenance contracts at the other power stations are unable to provide.
- The positioning, value chain, and the grand strategy matrix recommend that AMS diversify into pulley lagging and conveyor belt splicing. This will enable the firm to provide a unique mix of products and maximise the strengths of the firm.
- The plant maintenance tasks performed by the supervisors must be handed over to the artisans. The supervisors must be responsible for ensuring that the preventative maintenance is effective. This could be achieved if the supervisors determine the re-occurring breakdowns. The supervisors together with the engineers must identify the root cause of the failures. After the root causes of plant failures have been noted the preventative maintenance tasks must be modified. The supervisors must implement the safety and quality systems. The operations director together with the supervisors must perform quality, safety, plant and employee performance audits.
- Training must become a core function for the firm to ensure a low cost advantage by utilizing the semi – skilled workers. Continuous training will offset the risks of high staff turnover created by the skills shortage in South Africa.
- The supervisors must also plan the preventative maintenance tasks in advance to ensure flexibility of the labour force.
- The leaders must move the company towards achieving the strategic objectives.

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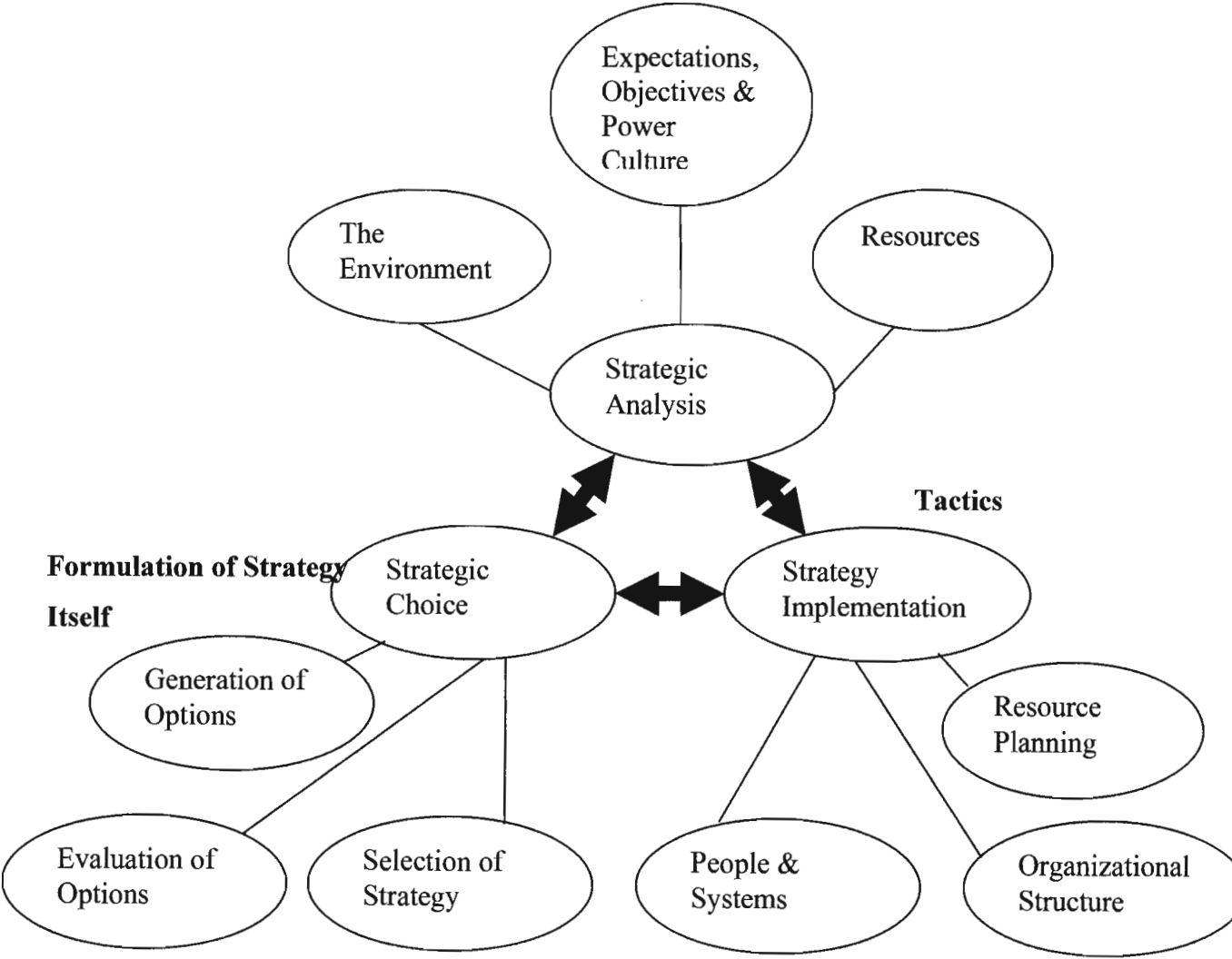
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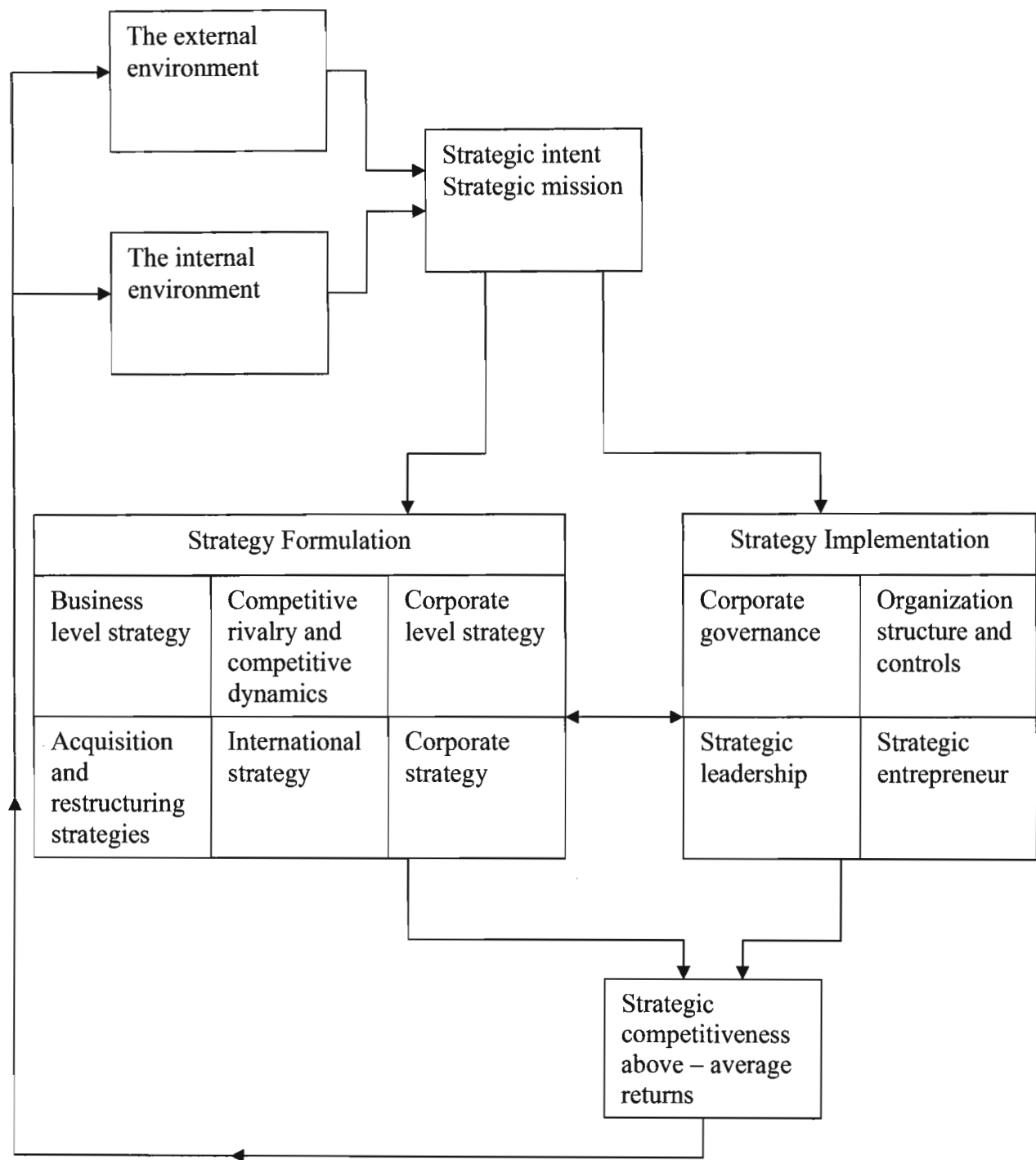
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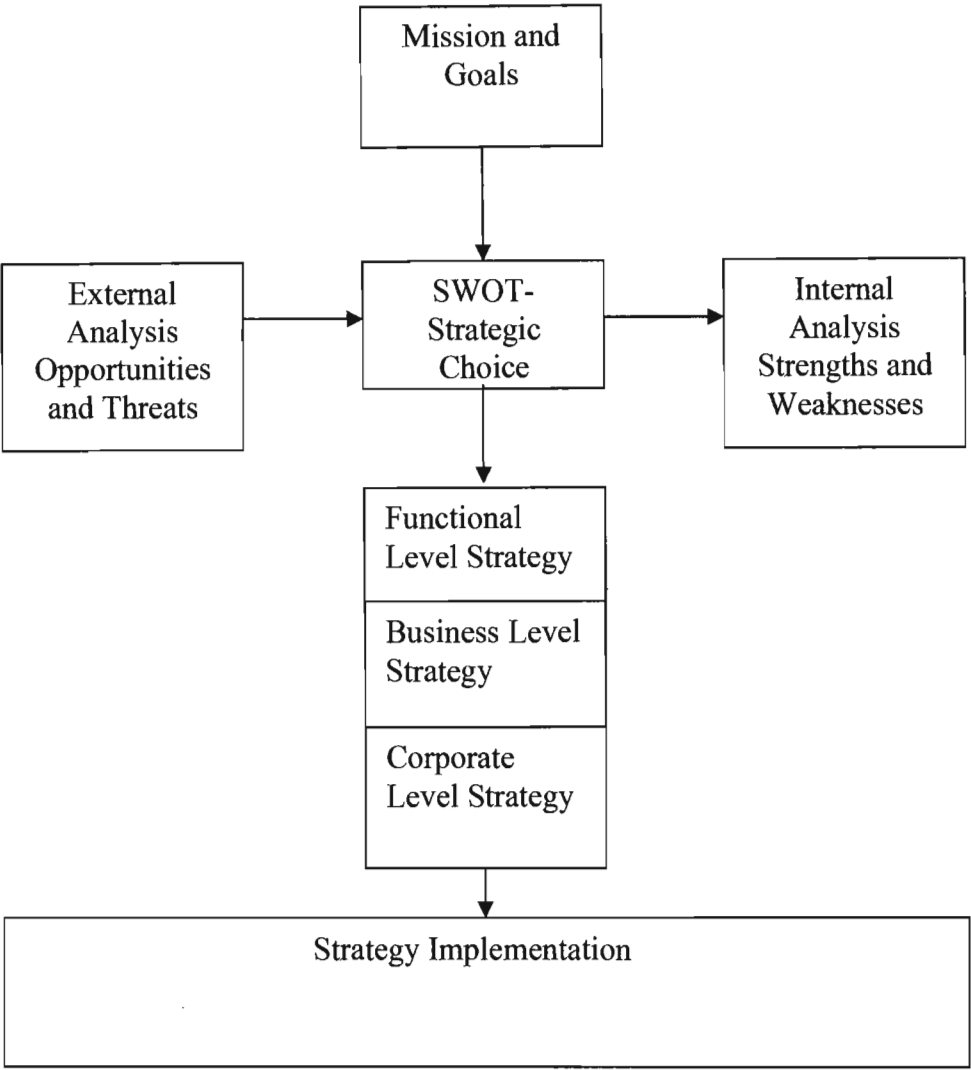
Appendix A: Johnson and Scholes Model of strategic management (in Robinson, 1994:8).



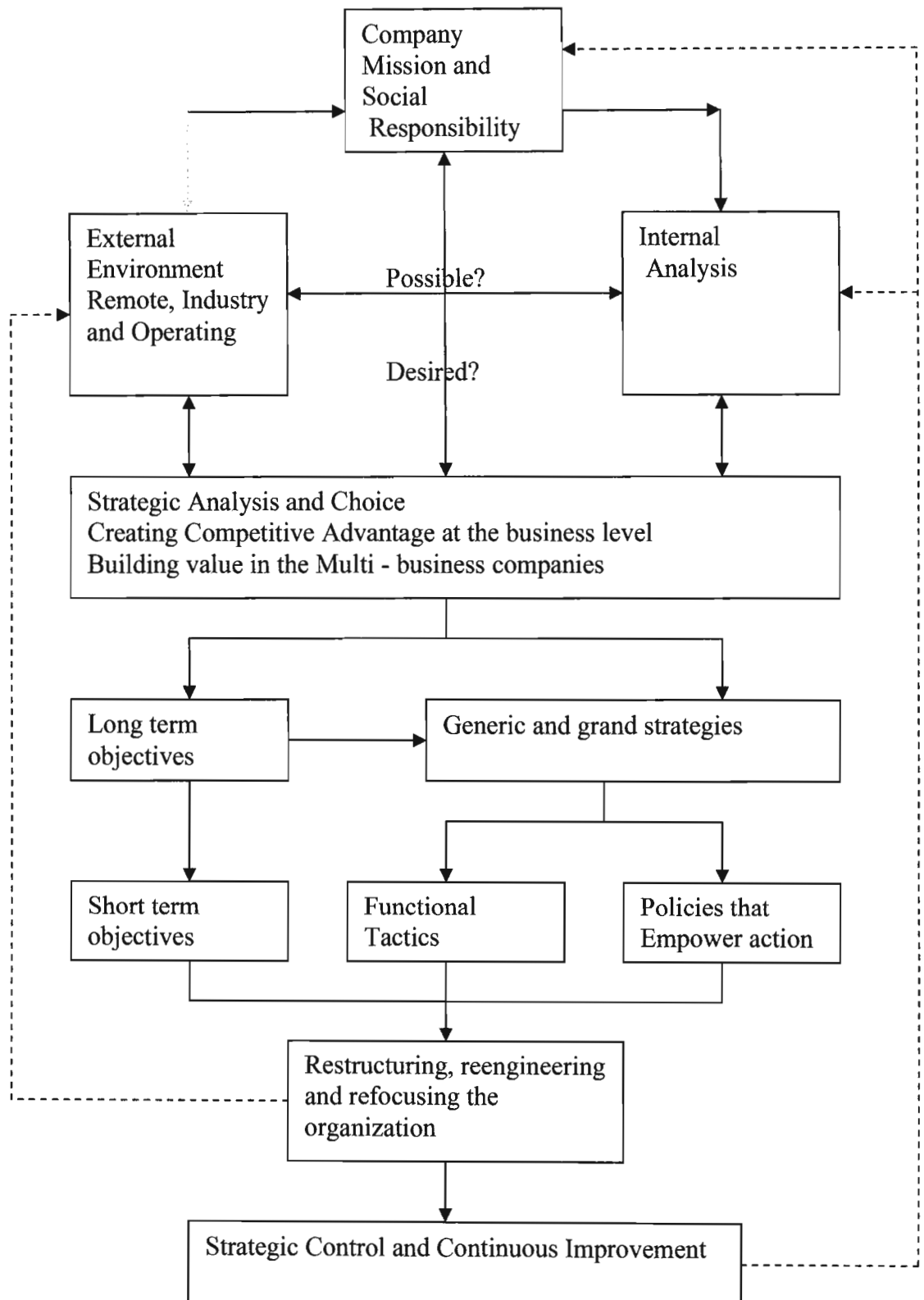
Appendix B: The Strategic Management Process (Hitt, Ireland and Hoskisson, 2003:8)



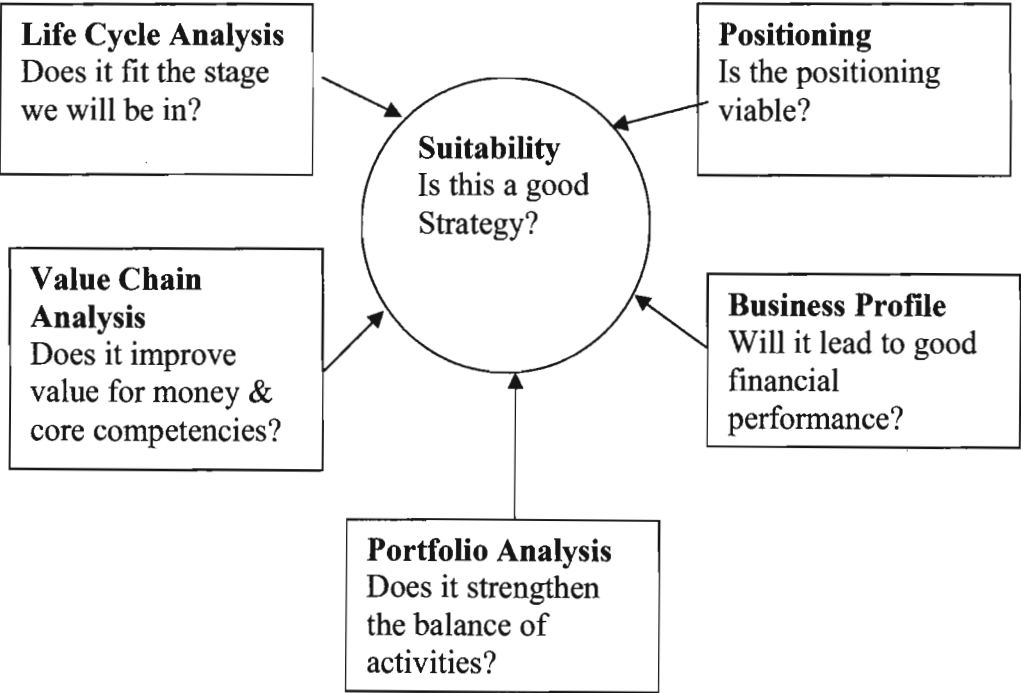
Appendix C: The Strategic Management Process (Hill and Jones, 2001:6)



Appendix D: Strategy Formulation and Implementation Process (Pearce and Robinson, 2003)



Appendix E: Testing Suitability (Johnson and Scholes, 1998:356)





Appendix F: In-Depth Interviews/Semi-Structured interview schedule, observations and secondary data.

List of Categories and Subcategories (Theories/Themes)	Research Instruments	List of Themes and Questions
<b>1. Remote Environment</b>		
<b>1.1 Political/Legal</b>		
<ul style="list-style-type: none"> <li>BEE Codes</li> <li>OHSA</li> <li>Labour Laws</li> <li>Financial Laws</li> <li>Incentives offered by government</li> </ul>	<p>-Documentary Secondary Data (SETA Newsletter, AMS Safety manual, AMS employment contracts, and Quickbooks financial system)</p> <p>- In-depth focus group interviews with AMS directors.</p>	<p>- What incentives are offered by the South African government to small to medium enterprises?</p>
<b>1.1.2 Economic</b>		
<ul style="list-style-type: none"> <li>Electricity demand</li> <li>Gross Domestic Product</li> <li>Inflation</li> <li>Interest Rates</li> <li>Inequality</li> <li>Fiscal and Monetary Policies</li> </ul>	<p>-Multiple source time series based electricity consumption statistics. (DTI website),</p> <p>-Documentary Secondary Data (internet articles and newspapers)</p>	
<b>1.1.3 Social</b>		
<ul style="list-style-type: none"> <li>HIV/AIDS/</li> <li>Unemployment</li> <li>Education and Training</li> <li>Gender Equity</li> </ul>	<p>-Documentary Secondary Data (Human Research Council 2003, SETA Newsletter, Eskom procurement policies)</p>	
<b>1.1.4 Technology</b>		
<ul style="list-style-type: none"> <li>Technologies utilised in providing maintenance services and products.</li> </ul>	<p>-Documentary Secondary Data (newspapers, Books and internet articles)</p>	
<b>1.1.5 Environment</b>		
<ul style="list-style-type: none"> <li>Hazardous Waste Management System</li> </ul>	<p>-In-depth focus group interviews with AMS directors and in-depth</p>	<p>-Has the company formulated and implemented a hazardous</p>

	<p>interviews with the AMS supervisors.</p> <p>-Documentary Secondary Data (Eskom Tender documents)</p>	<p>waste management system?</p> <p>- Do you understand the hazardous waste management environmental laws?</p>
<b>1.1.6 Global</b>		
<ul style="list-style-type: none"> <li>International companies penetrating the power generation industry.</li> </ul>	- Documentary Secondary Data (newspapers)	
<b>2. Industry Environment</b> <ul style="list-style-type: none"> <li>Profit Potential of the outsourced/contract maintenance services industry.</li> </ul>	<p>-Secondary Ad Hoc surveys (maintenance outsourcing surveys)</p> <p>- Documentary Secondary Data (AMS marketing documents)</p>	
<b>2.1 Threat of new entrants</b>		
<ul style="list-style-type: none"> <li>Barriers to entrance <ul style="list-style-type: none"> <li>- cost of entry</li> <li>- experience effects</li> <li>- switching costs</li> <li>- customer loyalty</li> </ul> </li> <li>Retaliation from competitors</li> <li>Growth rate of the contract maintenance services industry</li> </ul>	<p>-In-depth focus group interviews with AMS directors.</p> <p>-Documentary Secondary Data (AMS marketing documents).</p> <p>-In-depth face to face interviews with the maintenance manager, maintenance consultant and the C&amp;I maintenance manager.</p>	<p>- What are the barriers to entrance for competitors to take over AMS current contracts?</p> <p>- Has there been retaliation from competitors?</p> <p>-Will maintenance outsourcing/contracting grow within power generation?</p> <p>- Explain the drivers for the growth?</p>
<b>2.2 Bargaining Power of Suppliers</b>		
<ul style="list-style-type: none"> <li>Powerful suppliers influence costs, and availability of input materials.</li> </ul>	-In-depth focus group interviews with AMS directors.	- Do AMS rely on suppliers?

<b>2.3 Bargaining Power of Buyers</b>		
<ul style="list-style-type: none"> <li>• Large number of sales originate from one customer.</li> <li>• Switching costs</li> <li>• Undifferentiated products and services</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary Secondary Data on AMS financial records.</li> <li>- In-depth focus group interviews with AMS directors.</li> <li>- In-depth interviews with Majuba buyers</li> </ul>	<ul style="list-style-type: none"> <li>- Is maintenance differentiated or undifferentiated as compared to competitors?</li> <li>- Are switching costs low or high for customers?</li> <li>- Is the customer price sensitive?</li> <li>- Determine the market related prices for qualified artisans, technicians, operators, semi-skilled workers and cleaners.</li> </ul>
<b>2.4 Threat of Substitute Products</b>		
<ul style="list-style-type: none"> <li>• Existing and potential customers offer services at lower prices.</li> <li>• Substitute products for the current breakdown and preventative maintenance techniques.</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary Secondary Data (internet articles )</li> <li>- In depth focus group interviews with AMS directors, face to face interviews with the maintenance managers and the ash and coal plant supervisors from Eskom.</li> </ul>	<ul style="list-style-type: none"> <li>- Who are the existing and potential competitors of AMS?</li> <li>-What substitute products exist for breakdown and preventative maintenance?</li> </ul>
<b>2.5 Intensity of Rivalry among competitors</b>		
<ul style="list-style-type: none"> <li>• Slow market growth</li> <li>• Lack of differentiation</li> <li>• Equally balanced competitors</li> </ul>	<ul style="list-style-type: none"> <li>In-depth focus group interviews with AMS directors, face to face interviews with the maintenance manager and the ash and coal plant supervisor from Eskom.</li> </ul>	<ul style="list-style-type: none"> <li>- What is the intensity of rivalry among the existing competitors at Majuba and the other power stations?</li> </ul>
<b>3.Operating Environment</b>		
<b>3.1. Customers</b>		
<ul style="list-style-type: none"> <li>• Customer trends</li> <li>• Customer needs</li> <li>• Customer satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary secondary data (AMS marketing documents, South African Journal of Industrial engineering, key performance indicators)</li> <li>- Secondary Ad Hoc</li> </ul>	

	<p>Surveys (maintenance outsourcing surveys)</p> <ul style="list-style-type: none"> <li>- In-depth interviews with AMS directors and face to face interviews with the maintenance managers, and the ash and coal plant supervisors from Eskom.</li> <li>- Face to face interviews with Eskom ash and coal plant supervisors and the C&amp;I manager from Majuba.</li> </ul>	<ul style="list-style-type: none"> <li>-What trends exist within power generation for contract maintenance services?</li> <li>- Are you satisfied with the current services offered by AMS?</li> <li>- What problems exist with AMS and Eskom?</li> <li>- What problems exist currently on the ash and coal plant?</li> </ul>
<b>3.2 Labour</b>		
<ul style="list-style-type: none"> <li>• Availability of skilled artisans and technicians in South Africa.</li> </ul>	<ul style="list-style-type: none"> <li>-Documentary Secondary Data (internet articles and newspapers)</li> <li>-In-depth focus group interviews with AMS directors.</li> <li>-Face to face interviews with the Majuba maintenance manager.</li> </ul>	<ul style="list-style-type: none"> <li>- Have there been difficulties in attracting and retaining suitably qualified artisans and technicians?</li> </ul>
<b>3.3 Competitors</b>		
<ul style="list-style-type: none"> <li>• Direct competitors to AMS</li> <li>• Future objectives of competitors</li> <li>• Current strategies</li> <li>• Capabilities</li> <li>• responses</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary secondary data (Eskom procurement policies, organisational websites, AMS marketing documents)</li> <li>-In-depth focus group interviews with AMS directors.</li> </ul>	<ul style="list-style-type: none"> <li>- Describe the direct competitors to AMS and their current and future strategies.</li> <li>- Describe the competitors capabilities and responses.</li> </ul>
<b>4 Resources</b>		
<ul style="list-style-type: none"> <li>• tangible</li> <li>• intangible (reputation, skills, knowledge, branding, intellectual property and trade marks)</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary Secondary data (employment contracts, organ gram, financial documents, asset registers and management systems)</li> <li>- In-depth focus group</li> </ul>	<ul style="list-style-type: none"> <li>- What are the intangible</li> </ul>

	interviews with AMS directors. -Face to face interviews with AMS supervisors.	assets of AMS?
<b>5. Capabilities</b>		
<ul style="list-style-type: none"> <li>To ensure the availability of the plant and equipment maintained.</li> </ul>	<p>-In-depth focus group interviews with AMS directors. -Face to face interviews with supervisors, artisans and semi - skilled workers.</p> <p>- Observations made (morning production meetings, work performed on the plant, preventative and breakdown maintenance procedures, safety, quality, spares management, if the company follows the strategic objectives, integration</p>	<p>- What are the companies capabilities with respect to: technical skills and expertise, coal and ash plant process knowledge, maintenance techniques, safety and quality? - How familiar are all the organisational members with the mission and external opportunities and threats facing AMS?</p>
<b>6. Core Competencies</b>		
<ul style="list-style-type: none"> <li>Maintenance Services provided must be rare, valuable and non - substitutable.</li> </ul>	<p>-In-depth focus group interviews with AMS directors. -In-depth face to face interviews with the supervisors and artisans.</p>	<p>- Identify the core competencies of AMS which are rare, valuable and non - substitutable. - What training is offered to the AMS employees?</p>
<b>7. Functional Level Strategy</b>		
<ul style="list-style-type: none"> <li>Efficiency</li> <li>Quality</li> <li>Customer responsiveness</li> <li>incentives</li> </ul>	<p>- In-depth focus group interviews with AMS directors.</p>	<p>- What functions exist within AMS? - Do the functions meet the quality standards required by the customer? - Are the functions efficient and is there a quick response to the customers request with respect to plant breakdowns and maintenance tasks?</p>

		- What incentives are offered to the employees?
<b>8. Business Level Strategy</b>		
<ul style="list-style-type: none"> <li>• Who, What and How.</li> <li>• Positioning.</li> <li>• Generic strategies.</li> <li>• Value offered by AMS to the customer.</li> </ul>	<p>-In-depth focus group interviews with AMS directors.</p>	<ul style="list-style-type: none"> <li>- Who is the company's target market?</li> <li>- What needs of the target market customers will AMS satisfy?</li> <li>- How will the needs of the customers be satisfied?</li> <li>- How has the company been positioned in the market?</li> <li>- What generic strategies have been chosen?</li> <li>- How does the firm create value for the customer?</li> <li>- Do AMS provide a differentiated service as compared to the competitors?</li> </ul>
<b>9. Structure</b>		
<ul style="list-style-type: none"> <li>• Structure must follow strategy.</li> <li>• Coordinate activities of the employees.</li> <li>• Group tasks and functions.</li> <li>• Authority and responsibility.</li> <li>• Integration.</li> </ul>	<p>-Documentary secondary data (AMS structure).</p> <p>- In-depth focus group interviews with AMS directors.</p> <p>- In-depth face to face interviews with the supervisors, artisans, semi skilled workers and administrators.</p> <p>-Observations: structures and reporting, integration</p>	<ul style="list-style-type: none"> <li>- Do the structures follow the strategy?</li> <li>- Do the directors and supervisors co-ordinate the tasks of the employees to ensure: plant availability, quality and safety standards are met, and a preventative approach to maintenance?</li> <li>- Is the structure developed to achieve the tasks and functions?</li> <li>- Do the various members of the organisation have the necessary authority and responsibility over their respective functional areas?</li> </ul>

	problems among the Eskom departments, AMS and the cleaning contractors.	
<b>10. Controls</b>		
<ul style="list-style-type: none"> <li>• Ensure the strategic objectives are met.</li> <li>• Controls in place to ensure quality, safety, preventative maintenance and customer satisfaction.</li> <li>• Strategies in line with current and future customer trends and needs.</li> </ul>	<ul style="list-style-type: none"> <li>-Documentary Secondary Data (Key performance indicators, quality control plans).</li> <li>- Observations: morning production meetings, quality and safety management procedures.</li> <li>- In-depth focus group interviews with the AMS directors.</li> <li>- In-depth face to face interviews with the supervisors.</li> </ul>	<ul style="list-style-type: none"> <li>- How do AMS ensure the quality and safety management systems are implemented and controlled throughout the organisation?</li> <li>- How do the supervisors and directors ensure that the preventative maintenance is effective and the customers are satisfied?</li> </ul>
<b>11. Culture</b>		
<ul style="list-style-type: none"> <li>• Dominant beliefs</li> <li>• Values</li> <li>• Norms</li> <li>• Attitudes</li> </ul>	<ul style="list-style-type: none"> <li>-In-depth focus group interviews with AMS directors.</li> <li>-In-depth face to face interviews with AMS supervisors, artisans and semi - skilled workers.</li> <li>- Observations: values, norms and beliefs within AMS.</li> </ul>	<ul style="list-style-type: none"> <li>-What are the dominant beliefs, values, and norms in AMS with respect to breakdown and preventative maintenance, quality and safety?</li> <li>- What is the work environment culture within AMS?</li> </ul>
<b>12. Leadership</b>		
<ul style="list-style-type: none"> <li>• Anticipate and envision changes</li> <li>• Maintain flexibility</li> <li>• Managing through others and the entire enterprise</li> <li>• The leadership style and the industry life cycle must be matched</li> </ul>	<ul style="list-style-type: none"> <li>- In-depth focus group interviews with AMS directors.</li> <li>- In-depth face to face interviews AMS supervisors, artisans and semi - skilled workers.</li> <li>- Observations: leadership styles of the directors and supervisors.</li> </ul>	<ul style="list-style-type: none"> <li>- What are the current leadership styles among the directors and supervisors?</li> </ul>

## Appendix G: Abbreviations and terminologies

1. BEE: Black economic Empowerment
2. AMS: Amalahle Maintenance Services
3. DTI: Department of trade and industry
4. RCM: Reliability Centered Maintenance
5. C&I: Control and Instrumentation
6. SMEs: small medium and micro enterprises
7. VRIO: value, rareness, inimitability, and organization.
8. Imperfect market competition: arises when the buyer or seller has market power created by monopolistic, oligopoly and duopoly competition.
9. Conveyor belt splicing: is the process of joining damaged or new conveyor belts together.